

Sabratek ● 3030

Operation Manual

COMPATIBLE SETS LISTING

Release Date: March, 1997

Listed below are lists of compatible I.V. sets, other than sets supplied by Sabratek Corporation, that can be used with the **SABRATEK 3030** volumetric infusion pump. These lists are of "standard" soft PVC sets supplied by Baxter-Travenol, Abbott Laboratories, and McGaw, Inc. and are valid unless specifications are changed for those specific sets listed.

CAUTION: Only use the sets supplied by Sabratek Corporation or those listed below. Check the manufacturers product code against the list below before using a set. **DO NOT** use Micro sets, blood sets, or nitro sets. Use of unapproved sets can lead to improper pump operation and faulty fluid delivery.

Baxter-Travenol ("S" series, with an S suffix, 10 drops/ml)

1C8419	90" Non-vented solution set with 1.2 micron filter and male luer lock adapter.
2C1105	80" Vented fat emulsion administration set, roller clamp, slip tip.
2C5401	70" Basic solution set with flashball device.
2C5405	96" Basic solution set with injection site 27" from flashball device.
2C5417	70" Basic solution set with injection site 6" from male adapter.
2C5419	70" Vented basic solution set with injection site 6" from male adapter.
2C5423	84" Basic solution set with slide clamp, and two injection sites 6" and 26" from male adapter.
2C5425	100" Basic solution set with slide clamp, and two injection sites 6" and 33" from male adapter.
2C5431	70" Basic solution set with injection site 6" from friction fit male adapter and two slide clamps.
2C5435	90" Vented basic solution set with injection site 6" from Luer lock adapter.
2C5439	100" Basic solution set with non-vented spike, 2 Y-sites, roller clamp and male luer lock adapter.
2C5441	105" Non-vented administration set with injection sites at 6", 30", and 90" from the adapter, and male luer lock adapter.
2C5443	105" Vented solution set with 2 Y-sites and male luer lock adapter.
2C5453	100" Non-vented administration set with .22 upstream micron filter, 1 lower injection site, and male luer lock adapter.
2C5487	100" Non-vented solution set with upstream hollow fiber .22 micron filter, injection sites at 6" and 83" from adapter, and male luer lock adapter.
2C5493	100" Non-vented solution set with down-stream hollow fiber .22 micron filter, injection sites at 6" and 83" from adapter, and male luer lock adapter.
2C5519	84" Continu-flo solution set, check valve, two injection sites 6" and 68" from male adapter.
2C5521	90" Continu-flo solution set, check valve, slide clamp, three injection sites 6", 30" and 75" from male adapter.
2C5537	110" Continu-flo solution set, check valve, three injection sites 6", 44" and 94" from male adapter.
2C5543	100" Vented Continu-flo solution set, check valve, two injection sites 6" and 84" from male adapter.

Baxter-Travenol ("S" series, with an S suffix, 10 drops/ml) - Continued

2C5545	105" Continu-flo solution set, check valve, slide clamp, three injection sites 6", 42" and 87" from Luer lock adapter.
2C5561	100" Continu-flo solution set with in-line 0.22 micron high-pressure, air-eliminating filter, check valve, and two injection sites 12" and 81" from flashback device.
2C5571	100" Non-vented solution set with .22 downstream filter, check valve, and 2 injection sites.
2C5587	105" Non-vented solution set with backcheck valve, upstream .22 micron filter, injection sites at 6", 42", and 88" from adapter, and male luer lock adapter.
2C5593	100" Non-vented solution set with backcheck valve, slide clamp, injection sites at 6", 19", and 84" from male luer lock adapter.
2C6519	85" Continu-flo solution set with two injection sites 6" and 70" from distal end and luer lock adapter.
2C6537	110" Non-vented solution set with backcheck valve, Interlink Y-sites at 6", 44", and 94" from male adapter, male luer lock adapter.
2C6571	100" Continu-flo solution set with .22 micron upstream filter, 2 injection sites 6" and 86" from distal end, and luer lock

Abbott (with .100 ID, 15 drops/ml)

1728	100" Venoset 100 (Non-vented) - I.V. set with CAIR clamp and 2 Y-injection sites 6" and 88" from male adapter.
1818	78" Venoset piggyback (Non-vented) I.V. set with CAIR clamp, Y-type automatic backcheck valve, and 2 Y-injection sites 6" and 66" from male adapter.
1819	100" Venoset twin-site (Non-vented) I.V. set with CAIR clamp and 2 Y-injection sites 6" and 39" from male adapter.
1857	72" Venoset 72 (Non-vented) set with nonvented piercing pin, CAIR clamp and flashback bulb.
1859	78" Venoset (Non-vented) I.V. set with nonvented piercing pin, CAIR clamp and Y-injection site 6" from male adapter, slip tip.
1860	78" Venoset piggyback with flashback bulb (Non-vented) I.V. set with CAIR clamp, Y-type automatic backcheck valve, and 2 Y-injection sites with 6" and 66" from male adapter.
1877	80" Venoset anesthesia (Non-vented) I.V. set with CAIR clamp, Y-type automatic backcheck valve, and Y-injection site 44" and 6" from male adapter and flashback bulb.
1879	86" Venoset Y-type (Non-vented) I.V. set with CAIR clamp and Y-injection site 6" from male adapter.
1881	78" Venoset 78 (Vented) I.V. set with piercing pin, CAIR clamp and Y-injection site 6" from male adapter.
3082	81" Venoset piggyback (Non-vented) I.V. set with MB-Type piercing pin, CAIR clamp, Y-type automatic backcheck valve, and 2 Y-injection sites 6" and 66" from male adapter.
3084	78" Venoset 78 (Vented) I.V. set with MB-Type piercing pin, CAIR clamp, and Y-injection site 6" from male adapter..
4253	78" Venoset (Non-vented) I.V. set with 0.22 micron IVEX-2 filter and flashback bulb, CAIR clamp, and Y-injection site 6" from male adapter.

4293	78" Venoset (Non-vented) I.V. set with 0.22 micron IVEX-2 filter, CAIR clamp, and Y-injection site 6" from male adapter.
4967	80" Venoset piggyback (Vented) I.V. set with vented piercing pin, CAIR clamp, Y-type automatic backcheck valve, and 2 Y-injection sites 6" and 66" from male adapter.
4985	80" vented Venoset piggyback with .22 micron filter. CAIR clamp, back check valve and two injection sites, slip tip.
8082	100" Venoset 100-Secure lock piggyback (Non-vented) I.V. set with CAIR clamp, Y-type automatic backcheck valve, 2 Y-injection sites, secure lock male adapter.
8084	Venoset 100-Secure lock piggyback (Non-vented). 100 inch IV set with .22 micron filter, CAIR clamp, Y-site, automatic backcheck valve, 2 Y-sites below the pump, 1 Y-site above the pump, male luer lock adapter.
11392	100" Non-vented Life Shield primary piggyback IV set with backcheck valve, 3 prepierced, resealed Y injection sites and .22 HP filter.
11737	Life shield primary vented IV set with backcheck valve, LAV (Luer Activated Valve), .22 micron filter, and option lock.
15409	Non-vented primary set with 1 lower injection site, male luer lock adapter.
11540	Vented primary set with 2 injection sites, male luer lock adapter.
11545	Vented primary set with one lower injection site, male luer lock.

McGaw (15 drops/ml)

NF 1250	112" Safeline nonvented primary set with injection sites 6", 35", and 85" above distal end, backcheck valve, male luer lock, Controll Clamp.
V 1390	81" Lipid set, Fat Emulsion Set, no-DEHP, vented spike, injection site 6" above needle adapter, Controll Clamp.
V 1415-15	94" Basic set injection site 28" above needle adapter, flashtube, Controll Clamp.
V 1417	75" Basic set with injection site 6" above needle adapter, flashtube, Controll Clamp.
V 1418	76" Basic set with vented spike, injection site 6" above needle adapter, flashtube, Controll Clamp.
V 1418-15	76" Basic set with vented spike, injection site 6" above distal end, male luer lock, Controll Clamp.
V 1421-20	85" Basic set with 2 injection sites 6" and 28" above needle adapter, flashtube, Controll Clamp.
V 1443	86" Primary set with check valve, 2 set with injection sites 6" and 60" above needle adapter, flashtube, Controll Clamp.
V 1446	93" Primary set with check valve, 2 set injection sites 6" and 70" above needle adapter, Controll Clamp.
V 1710	72" Filtered set with vented spike, injection site 12" above needle adapter, flashtube, Low Pressure Trimed Filter (0.22 micron), Controll Clamp.
V 1782	87" Filtered set w/check valve, 3 set with injection sites 6", 28", and 58" above needle adapter, Low Pressure Trimed Filter (0.22 micron), Controll Clamp, slide clamp.
V 1792-03	98" Filtered set with injection site 6" above distal end, male luer lock adapter, Low Pressure Trimed Filter (0.22micron), Controll Clamp, slide clamp.

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Sabratek 3030

Volumetric Infusion Pump

Operation Manual

Sabratek Corporation
Niles, Illinois 60714
800-556-7722

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rev. 6.1
P/N 080000

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DANGERS, WARNINGS & NOTICES

DANGER!

- There is a possible explosion hazard if this pump is used in the presence of flammable anesthetics.
- **DO NOT** operate the pump on line power while the patient is immersed in water since this can present an electric shock hazard that can cause severe injury or death.

WARNING!

- The clinician/user must read and understand this manual before using the Sabratek 3030 infusion pump. **Failure to properly follow instructions can lead to patient injury or death.**
- To reduce the risk of electrical shock, **DO NOT** remove pump cover. Refer servicing to qualified service personnel.
- To avoid possible electric shock, turn the pump off and disconnect it from the line power outlet before cleaning.
- **DO NOT** steam autoclave or immerse the pump in liquid or it will be damaged.
- Unrestricted fluid flow can occur if the IV administration set is not properly placed under the free flow clamp. To prevent this, place the tubing **UNDER** the free flow clamp when installing the set in the pump and close the IV administration set's clamp **BEFORE** removing the set from the pump.
- Use **only** the IV administration sets recommended for use with this pump.
- Use **only** the IV administration set indicated on the pump's display.
- Place the IV tubing in the direction of the Flow Direction Arrows located inside the door (**LEFT to RIGHT**).
- The flow sensor is **disabled** when using a Sabraset (see **Calibrations** instructions on page 36) and **may be disabled** after the first 3 ml of fluid delivery when using an Abbott, Baxter or McGaw administration set. When the flow sensor is **disabled**, the pump will **NOT** alarm for Up Occlusion/Empty Bag or High Rate.
- The flow sensor will be reactivated (enabled) for an additional 3 ml of fluid delivery if the pump door is opened, and if the pump is switched off then on.
- If the pump is stopped for more than an hour with the door closed on the tubing, a new section of the IV set's tubing should be positioned along the inner door or the pump may under infuse.
- **DO NOT** use the pump with a minidrip set or a blood set, other than those specifically designated as such and manufactured by Sabratek Corporation.

NOTICE

- The Sabratek 3030's accuracy of delivery is affected by the quality of the IV administration set being used with the pump. Sabratek Corporation guarantees the quality and accuracy of its own sets only and is not liable for the quality or accuracy of other brands of IV administration sets being used with its pump.
- **Keep pump connected to AC power when not in use.**
- To assure a fully charged battery, the pump should be plugged into an AC outlet (see **Battery Operation** instructions on page 50) for a minimum of 24 hours before initial use.

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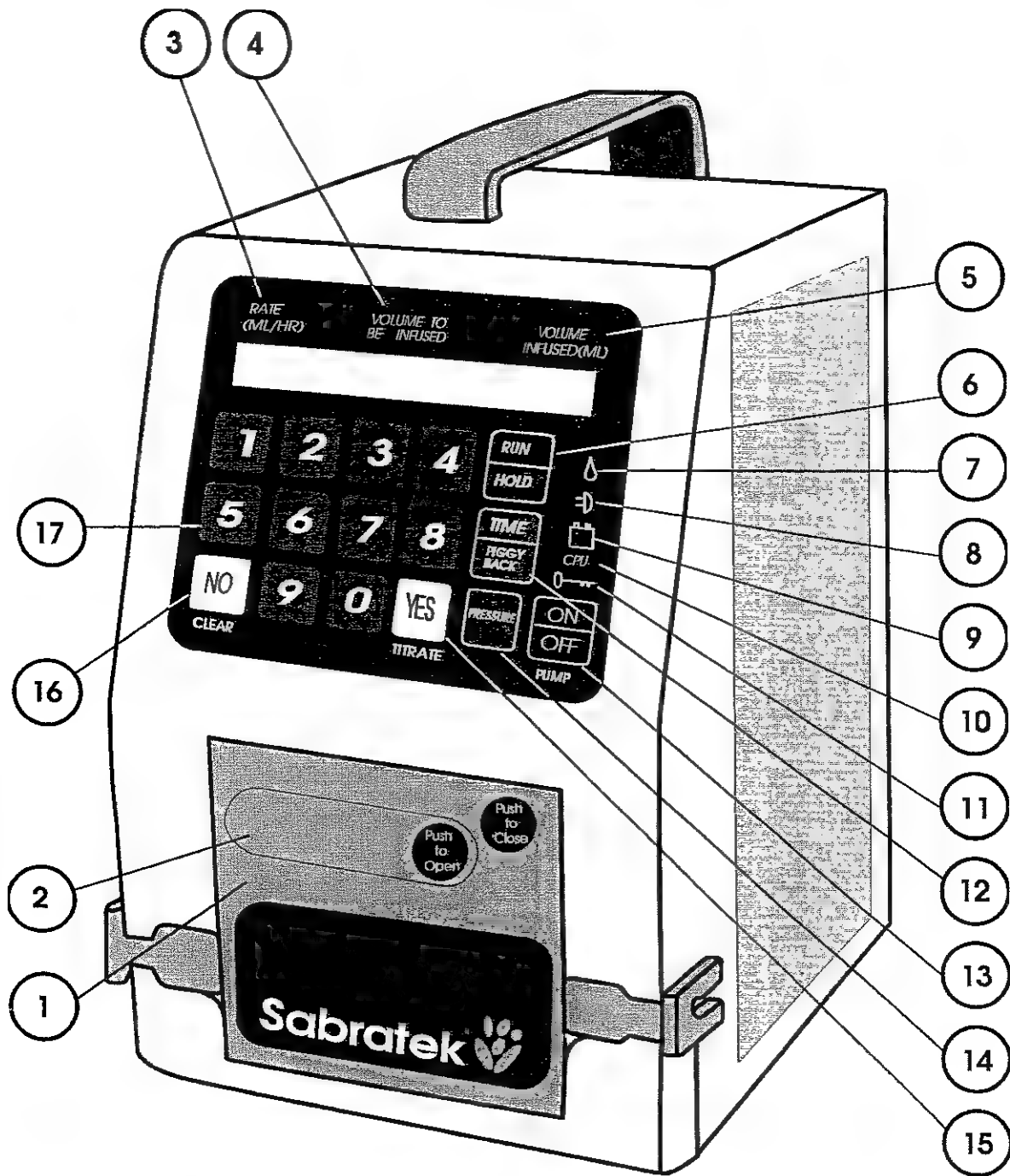
PUMP PROFILE

The Sabratek 3030 infusion pump provides accurate, safe, and reliable volumetric delivery and can be used in both arterial and venous applications.

- The Sabratek 3030 can use standard, soft, straight-line IV administration sets that are manufactured by either Abbott, Baxter, McGaw, or Sabratek (both the SabraSet and the SabSil set). See the compatible sets listing in the front of this manual.
- The pump is easy to program and use. You simply agree or disagree with the pump's prompts by using the YES and the NO keys.
- The pump's Lockout mode makes it tamper-resistant by requiring a software access code to be keyed in prior to any parameter changes. This limits patient programming and profile selection while maintaining optimum compliance.
- The Sabratek pump offers four delivery profiles:
 - (1) Continuous profile —a continuous delivery of a single flow rate.
 - (2) Auto-Ramp profile —automatic, linear ramping (tapering) capabilities.
 - (3) Intermittent profile —delivery of a preset number of doses at regular intervals.
 - (4) 15 Periods profile —sequential delivery of up to fifteen different rates and volumes.
- Secondary (Piggyback) infusion can be delivered before or during the primary infusion. The pump automatically switches to delivering the primary infusion's rate when the Piggyback volume is complete.
- Titration allows the delivery rate and/or the volume to be infused to be changed in Continuous and in Piggyback profiles.
- The pump provides a choice of entering either a delivery rate or a delivery time for an infusion.
- You may delay the starting time of any profile (including Piggyback).
- Programmed infusion settings are recalled by the pump indefinitely, or until they are changed by the operator. There is no need to reprogram the parameters before each use.
- Turning the pump off during an infusion requires two separate keys to be pressed (decreasing the chances of an accidental interruption of an infusion).
- If the pump is turned off before an infusion is completed, the rate, volume-to-be-infused, and volume infused will be retained in the pump's memory. When the pump is restarted, the infusion may be resumed exactly from where it was stopped.
- The audible alarm cannot be completely disabled.
- Quiet operation.
- Pump information can be displayed in either English or Spanish (other languages are optional).
- Pump displays the time remaining until the end of an infusion.
- The volume infused display can be cleared to zero.
- The pump displays a flashing flow indicator arrow while the pump is infusing. It is displayed between the rate and the volume infused displays and flashes every one second.

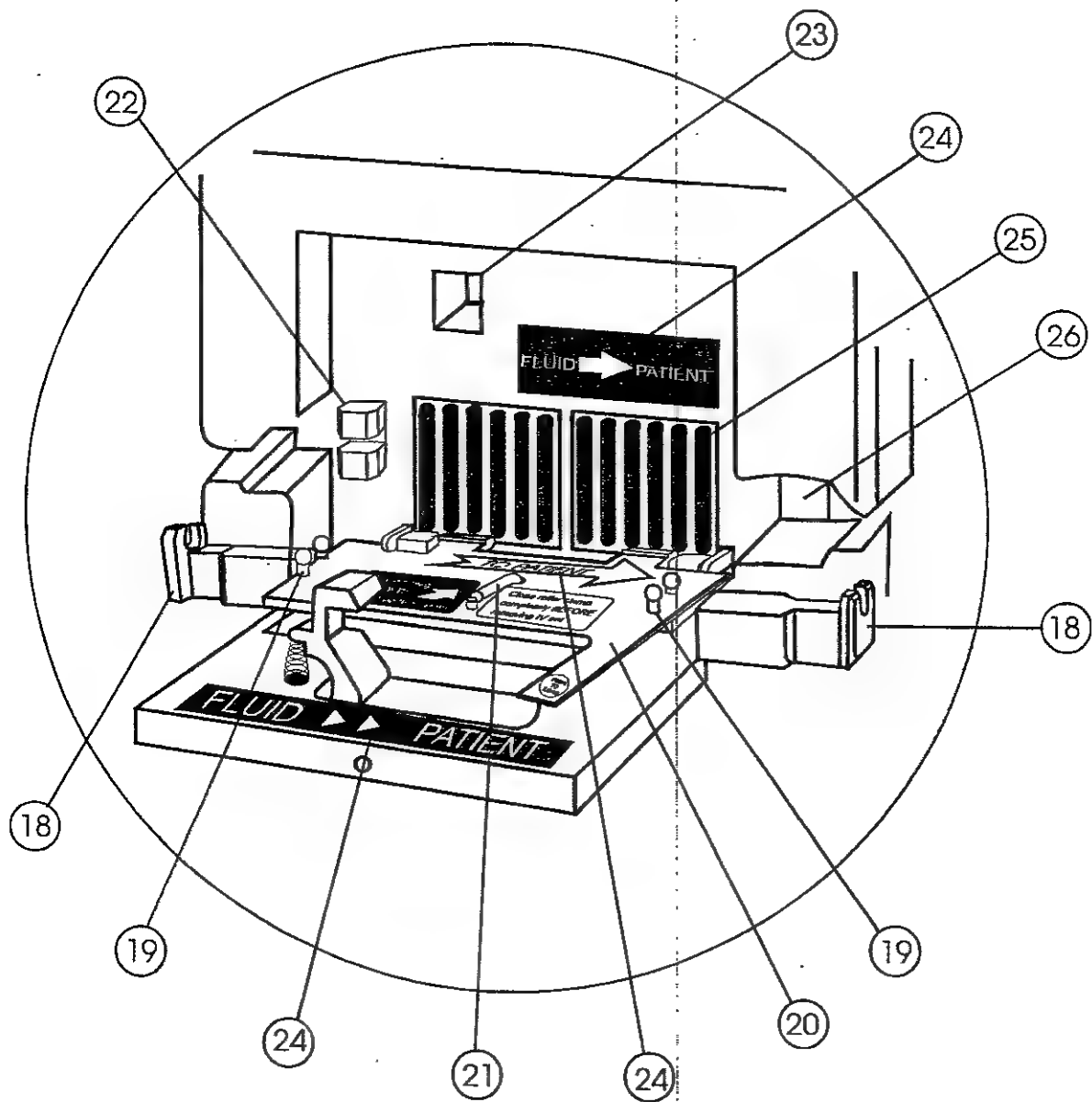
FRONT VIEW

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|---------------------------------|---|
| 1) OUTER DOOR | Protects the INNER DOOR. |
| 2) OUTER DOOR LATCH | Opens the OUTER DOOR to give access to the INNER DOOR. |
| 3) INFUSION RATE DISPLAY | Indicates, in ml/hr, the rate at which the fluid is being delivered by the pump. |
| 4) VOLUME-TO-BE-INFUSED DISPLAY | Indicates, in ml, the volume of fluid to be delivered by the pump. During an infusion the flow indicator arrow is located here. |
| 5) VOLUME INFUSED DISPLAY | Indicates, in ml, the cumulative volume of fluid which has been infused by the pump. |
| 6) RUN/HOLD KEY | Used to start, pause, or restart the infusion, as well as to temporarily silence the audible alarm. |
| 7) INFUSION INDICATOR | Flashes when there is a flow of fluid through the drip chamber of the IV administration set. |
| 8) LINE POWER INDICATOR | Illuminates when the pump is connected to line power. |
| 9) BATTERY POWER INDICATOR | Illuminates when the pump is operating on its internal battery. |
| 10) CPU MALFUNCTION INDICATOR | Illuminates when there is an internal malfunction. |
| 11) LOCKOUT INDICATOR | Illuminates when pump's lockout mode is activated. |
| 12) TIME/PIGGYBACK KEY | Used to indicate the time and the volume-to-be-infused that are remaining until the end of the infusion. Also, it is used to access the Piggyback mode. |
| 13) ON/OFF KEY | Used to turn the pump on or off. |
| 14) PRESSURE KEY | Used to set, as well as to indicate, the pressure alarm setting (HI or LO). |
| 15) "YES" KEY | Used to answer the pump's prompts and to accept delivery parameters. (Also used to access titration mode.) |
| 16) "NO" KEY | Used to answer the pump's prompts, to reject delivery parameters, and to clear the volume infused display. |
| 17) NUMBERS KEYS | Used to enter access codes and delivery parameters. |



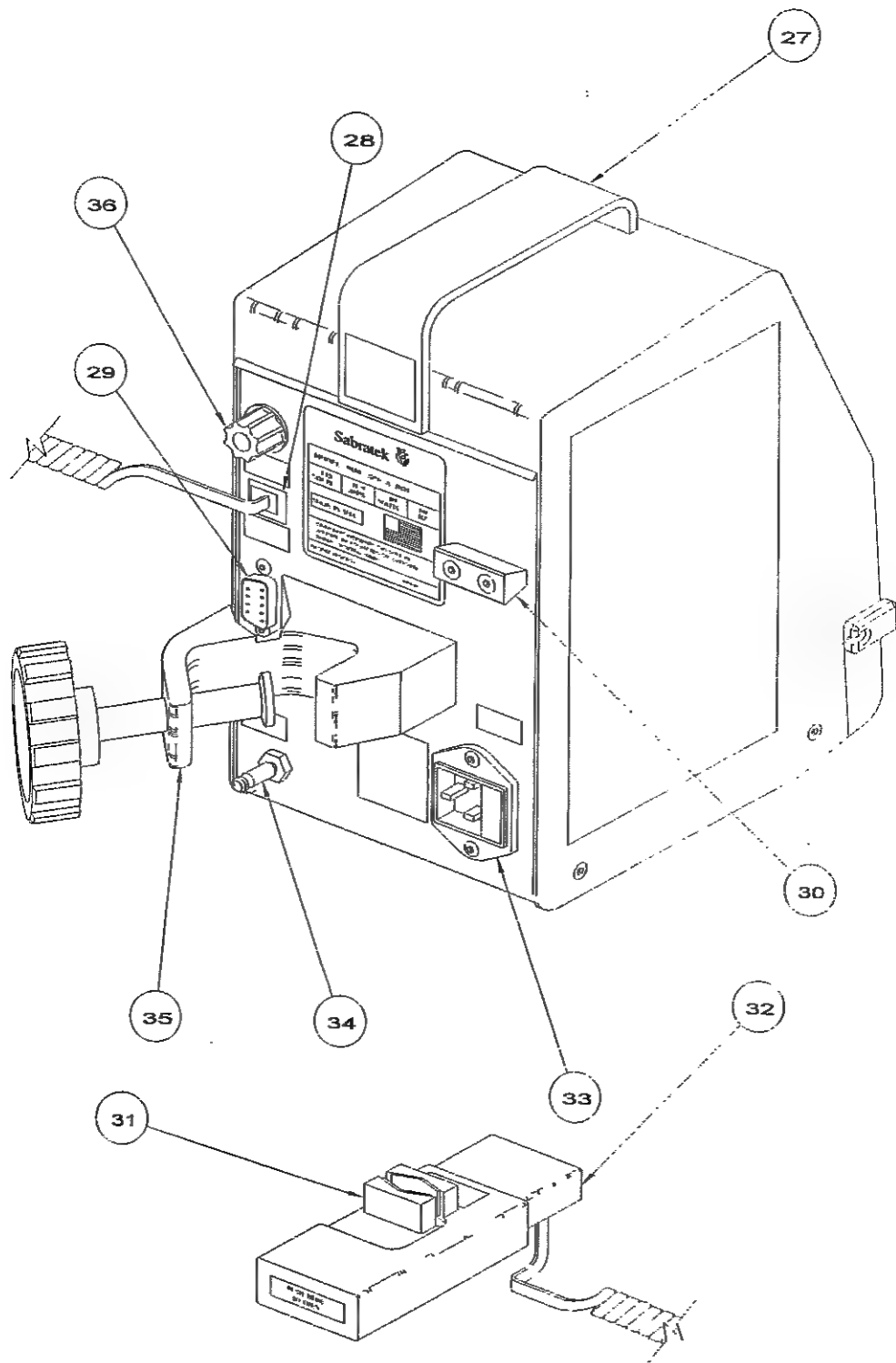
INNER VIEW

- | | |
|--------------------------|---|
| 18) OUTER TUBING GUIDES | Used to position the set's tubing for correct pump operation. |
| 19) INNER TUBING GUIDES | Used to position the set's tubing for correct pump operation. |
| 20) INNER DOOR | Presses the IV set tubing against pumping mechanism. |
| 21) FREE-FLOW CLAMP | Prevents gravity free-flow when the OUTER DOOR is opened. |
| 22) AIR-IN-LINE DETECTOR | Detects air in the IV administration set. |
| 23) DOOR OPEN SENSOR | Detects if OUTER DOOR is open. |
| 24) FLOW DIRECTION LABEL | Shows direction of fluid flow during an infusion. |
| 25) PUMPING MECHANISM | Provides accurate delivery. |
| 26) PRESSURE SENSOR | Monitors the pressure inside the tubing. |



BACK VIEW

- | | |
|------------------------------|---|
| 27) PUMP HANDLE | Used for transporting the pump. |
| 28) FLOW SENSOR JACK | The FLOW SENSOR'S plug inserts into this port. |
| 29) COMMUNICATION PORT | Permits the exchange of information between the pump and an external computer (RS232 format). |
| 30) FLOW SENSOR MOUNTING LUG | Used to mount flow sensor assembly when not in use. |
| 31) FLOW SENSOR RISERS | Used to position the FLOW SENSOR on the drip chamber, risers up as labeled. |
| 32) FLOW SENSOR | Attaches to the IV set's drip chamber to detect the fluid flow and to alarm for UP OCCLUSN/EMPTY BAG and HIGH RATE. |
| 33) AC POWER SOCKET | 110v AC socket with line fuses. |
| 34) GROUNDING SCREW | Permits an external grounding wire to be attached to the pump if necessary. |
| 35) POLE CLAMP | Used to attach the pump to an IV pole. |
| 36) ALARM VOLUME CONTROL | Used to increase or decrease the audible alarm volume. |



PUMP SETUP

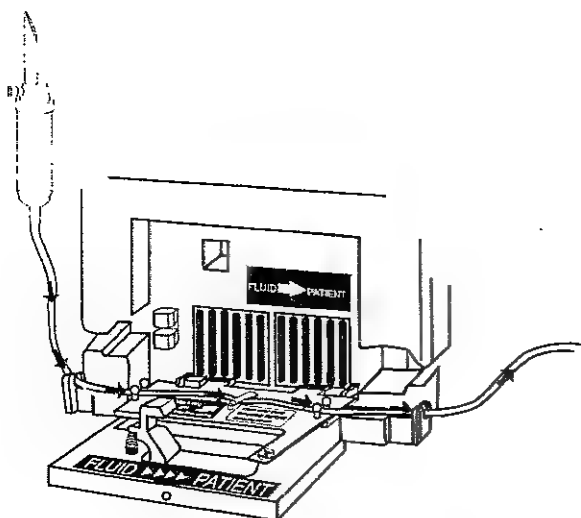
- 1) Securely attach the pump to an IV pole by turning the knob on the POLE CLAMP clockwise, or place the pump on a flat surface.
- 2) Insert the power supply cord (included with your pump) into the AC POWER SOCKET in the rear of the pump. Plug the other end of the power supply cord into an AC electrical outlet and verify that the LINE POWER INDICATOR is illuminated.
- 3) Switch the pump on by pressing the ON/OFF KEY. The words "SELF-TEST..." will appear briefly, followed by the name of the current IV administration set setting ("ABBOTT SET!", "BAXTER SET!", "McGAW SET!", "SABRASET!", etc.). This is done in order to verify that the correct set is going to be used with the infusion.

WARNING! USE ONLY THE IV ADMINISTRATION SET INDICATED ON THE DISPLAY. DO NOT USE THE PUMP IF THE IV ADMINISTRATION SET TO BE USED WITH THE PUMP AND THE IV SET INDICATED ON THE DISPLAY ARE NOT THE SAME. To change the brand of IV administration set displayed, follow the Calibration instructions on page 37.

The Sabratek 3030 can be used with either a standard IV administration set or with a primary IV administration set, which is usually used with secondary (piggyback) infusions. (See attached Compatible Sets Listing inside front cover of this manual for a list of recommended IV sets.)

A. Pump setup with a primary or standard IV administration set:

- 1) Prepare the IV solution container and prime the IV administration set according to the instructions provided on the IV administration set package. Make sure that the drip chamber is approximately one-third full and that there is no air in the set. Close the downstream (lower) roller clamp.
- 2) Hang the IV solution container so the container's bottom is approximately 14"-20" above the pump.
- 3) Open the OUTER DOOR of the pump by pushing on the red label marked **PUSH TO OPEN** located on the right-hand side of the OUTER DOOR LATCH. Swing the OUTER DOOR down.
- 4) On the lower, right-hand corner of the INNER DOOR, place your thumb on the blue label marked **PUSH TO LOAD** to open the FREE FLOW CLAMP. Slip the IV administration set tubing **UNDER** the FREE FLOW CLAMP, in the direction of the flow direction arrows, and position the tubing in the TUBING GUIDES. Release the pressure on the INNER DOOR. The tubing will be firmly clamped in place without permitting any free flow in the IV set. (See illustration on next page.)
- 5) Swing the OUTER DOOR up and push firmly on the OUTER DOOR until the DOOR LATCH clicks into place.



Place the IV tubing from LEFT to RIGHT.

- 6) Ensure that the FLOW SENSOR is connected to the pump. Its FLOW SENSOR plug must be placed into the FLOW SENSOR jack located on the back of the pump.
- 7) Attach the FLOW SENSOR to the IV set's drip chamber by pressing both ends of the FLOW SENSOR towards each other to widen the center opening. Place the FLOW SENSOR on the drip chamber and slide it up until the FLOW SENSOR RISERS are up against the drip chamber's finger guard. Slowly release both ends of the FLOW SENSOR. Its internal spring will keep it in place on the drip chamber.
- 8) Open all the IV administration set's clamps and attach the end of the IV set to the patient's access device.

B. Pump setup with a Sabra set administration set:

- 1) Prepare the IV solution container and prime the IV administration set according to the instructions provided on the set package. Make sure there is no air in the set. Close the administration set clamp.
- 2) Hang the IV solution container so the container's bottom is approximately 14" to 20" above the pump.
- 3) Open the OUTER DOOR of the pump by pushing on the red label marked PUSH TO OPEN located on the right-hand side of the OUTER DOOR LATCH. Swing the OUTER DOOR LATCH down.
- 4) On the lower, right-hand corner of the inner door, press the blue label marked PUSH TO LOAD to open the FREE FLOW CLAMP. Slip the IV administration set tubing **UNDER** the FREE FLOW CLAMP, in the direction of the flow direction arrows, and position the tubing in the TUBING GUIDES. Release the pressure on the INNER DOOR. The tubing will be firmly clamped in place without permitting any free flow in the IV set. (See illustration above.)
- 5) Swing the OUTER DOOR up and push firmly on the OUTER DOOR until the DOOR LATCH clicks into place.
- 6) Open the IV administration set's clamp and attach the end of the IV set to the patient's access device.

C. Pump setup with primary and secondary IV administration sets (see Piggyback on page 28):

- 1) Prepare the primary IV solution container and prime its IV administration set according to the instructions provided on the set package. If you desire to piggyback, you must use a primary IV set which is designated by its manufacturer for use with a secondary IV set (i.e. you must use an

IV set with an upper Y-site and check valve to allow for a piggyback infusion). Make sure that the drip chamber is approximately one-third full and that there is no air in the set. Close the downstream (lower) roller clamp.

IMPORTANT! The secondary (piggyback) IV set must have a drip chamber.

- 2) Prepare the secondary IV solution container and prime the secondary IV administration set according to the instructions provided on its package. Make sure that the secondary IV set's drip chamber is approximately one-third full and that there is no air in the set. Connect the secondary IV set to the primary IV set at the upper Y-site according to protocol.
- 3) Hang both solution containers on the IV pole so that the container's bottom is approximately 14" above the pump. When it is time to infuse the secondary solution container, lower the primary solution container, using the hanger provided. The secondary IV administration set package may provide more detailed instructions.
- 4) Open the OUTER DOOR of the pump by pushing on the red label marked **PUSH TO OPEN** located on the right-hand side of the OUTER DOOR LATCH. Swing the OUTER DOOR down.
- 5) On the lower, right-hand corner of the INNER DOOR, press the blue label marked **PUSH TO LOAD** to open the FREE FLOW CLAMP. Slip the IV administration set tubing UNDER the FREE FLOW CLAMP, in the direction of the flow direction arrows, and position the tubing in the TUBING GUIDES. Release the pressure on the INNER DOOR. The tubing will be firmly clamped in place without permitting any free flow in the IV set. (See illustration on previous page.)
- 6) Swing the OUTER DOOR up and push firmly on the OUTER DOOR until the DOOR LATCH clicks into place.
- 7) Ensure that the FLOW SENSOR is connected to the pump. Its FLOW SENSOR plug must be placed into the FLOW SENSOR jack located on the back of the pump.
- 8) A. Attach the FLOW SENSOR to the primary IV set's drip chamber if you plan to deliver the secondary (Piggyback) infusion during the primary infusion.
B. Attach the FLOW SENSOR to the secondary (Piggyback) IV set's drip chamber if you plan to deliver the secondary (Piggyback) infusion before the primary infusion.
- 9) Attach the FLOW SENSOR to the appropriate IV set's drip chamber by pressing both ends of the FLOW SENSOR toward each other to widen the center opening. Place the FLOW SENSOR on the drip chamber and slide it up until the FLOW SENSOR RISERS are against the drip chamber's finger guard. Slowly release both ends of the FLOW SENSOR. Its internal spring will keep it in place on the drip chamber.
- 10) A. If you plan to deliver the secondary (Piggyback) infusion during the primary infusion, open the primary administration set's clamps and attach the end of the IV set to the patient's access device.
B. If you plan to deliver the secondary (Piggyback) infusion before the primary infusion, open all clamps on both the primary and secondary infusion sets, lower the primary solution container, and attach the end of the IV set to the patient's access device.

PROGRAMMABLE/LOCKOUT

The Sabratek 3030 provides you with two options for accessing the pump's profiles:

- A) Programmable mode — permits changes to all of the profile's parameters.
- B) Lockout mode — prevents tampering with the profile parameters by disallowing any changes to the profile's parameters as well as limiting the access to only the desired profile(s).

A. Programmable Mode:

- 1) In the Programmable mode, the user can:
 - a. Program the parameters for all of the pump's delivery profiles (see **Continuous** profile on page 17, see **Auto-Ramp** profile on page 19, see **Intermittent** profile on page 22, see **15 Periods** profile on page 25, and see **Piggyback** profile on page 28),
 - b. Infuse any of the pump's delivery profiles,
 - c. Titrate (change) the infusion rate and/or volume-to-be-infused of a Continuous and/or Piggyback infusion (see **Titration** on page 33),
 - d. Choose between high pressure (PRESSURE:HI) or low pressure (PRESSURE:LO) alarm settings (see **Pressure** on page 38), and
 - e. Clear the VOLUME INFUSED DISPLAY (see **Pump Features & Prompts** on page 43).
- 2) To utilize the Programmable mode:
 - a. Switch the pump on by pressing ON/OFF. The words "SELF-TEST..." will appear briefly, followed by the name of the IV administration set that must be used with the pump ("ABBOTT SET!", "BAXTER SET!", "McGAW SET!", "SABRASET!", etc.). This is done in order to verify that the correct set is going to be used with the infusion.
 - b. Press YES. The word "LOCKOUT" will be displayed. (If the word "PROGRAMMABLE" is displayed then the pump is already in the Programmable mode and you may now press YES to continue through the programming process).
 - c. Press NO. The word "PROGRAMMABLE?" will be displayed.
 - d. Press YES. The words "ENTER CODE" will be displayed.
 - e. Press the NUMBERS keys 9, 1, and 1 sequentially. The word "PROGRAMMABLE" will appear. You may now press YES to continue through the programming process.

3) Creating a Profile Specific Pump:

The Sabratek3030 demonstrates its flexibility for multiple profile programming by having 5 different independent delivery profiles. The Sabratek3030 also gives you the ability to decide which profiles are available for display, programming and lockout. This is accomplished through a unique numerical code at the "PROGRAMMABLE" screen.

- a. Switch the pump on by pressing ON/OFF. The words "SELF-TEST..." will appear briefly, followed by the name of the IV administration set that must be used with the pump ("ABBOTT SET!", "BAXTER SET!", "McGAW SET!", "SABRASET!", etc.). This is done in order to verify that the correct set is going to be used with the infusion. At the "PROGRAMMABLE" screen, enter the following four numbers: 4, 6, 4, 6.
- b. The pump will display "SL. ALLOW PR?" (SELECT ALLOWED PROGRAM). Press YES to begin the customization process. Each profile will be displayed one after the other. Select only those profiles which you want to be displayed during normal pump operation.
- c. The words "Allow PRDS?" (ALLOW PERIODS) will display. If you want the Periods profile to display, press YES. If you do not want the Periods profile displayed, press NO.
- d. The words "Allow INTER?" (ALLOW INTERMITTENT) will display. If you want the Intermittent profile to display, press YES. If you do not want the Intermittent profile displayed, press NO.
- e. The words "Allow RAMP?" (ALLOW AUTO RAMP) will display. If you want the Auto-Ramp profile to display, press YES. If you do not want the Auto-Ramp profile displayed, press NO.
- f. The words "Allow CONT?" (ALLOW CONTINUOUS) will display. If you want the Continuous profile to display, press YES. If you do not want the Continuous profile displayed, press NO.
- g. If no profiles were chosen, each profile will appear again, beginning with "Allow PRDS?" (ALLOW PERIODS). If you turn the pump off without selecting any profile, no changes will be made to the currently displayed profiles.
- h. When at least one profile is selected, the pump will return to the "PROGRAMMABLE" screen. You may now press YES or RUN/HOLD to display the first profile. Press NO to display the other profiles selected. If this is the only profile that you selected, the screen will not change and your only option is to press YES to program the profile or RUN/HOLD to take the short cut to begin the infusion.

B. Lockout Mode:

- 1) In the Lockout mode, the patient/caregiver has limited access to the pump's delivery profiles and their parameters. These limited delivery profiles are preprogrammed and predetermined by the nurse. For example, you can limit the patient/caregiver's access to only the Continuous and the Auto-Ramp profiles, as well as preventing these profiles' parameters from being changed. Once you lockout these profiles, their parameters will remain in the pump's memory without the need to reprogram or relock them between use.
- 2) Using the Lockout mode consists of three stages:
 - a. accessing and setting the Lockout mode,
 - b. choosing and starting the primary infusion, and
 - c. delivering a Piggyback infusion in Lockout mode.

3) To access and set the Lockout mode:

- a. Switch the pump on by pressing ON/OFF. The words "SELF-TEST..." will appear briefly, followed by the name of the IV administration set that must be used with the pump ("ABBOTT SET!", "BAXTER SET!", "McGAW SET!", "SABRASET!", etc.). This is done in order to verify that the correct set is going to be used with the infusion.
- b. Press YES. The word "PROGRAMMABLE" will be displayed. (If the word "LOCKOUT" is displayed then the pump is already in the Lockout mode and you may now press YES to select the desired profile for delivery).
- c. Press NO. The word "LOCKOUT?" will be displayed. Press YES and the words "ENTER CODE" will be shown.
- d. Press the NUMBERS keys 9, 1, and 1 sequentially. The words "Allow CONT?" will appear.
- e. If you want the preprogrammed Continuous profile to be available for delivery, press YES. ("RE-PROGRAM!" will display if the profile has zero values.) If you do not want the preprogrammed Continuous profile to be available for delivery, press NO. The words "Allow RAMP?" will appear.
- f. If you want the preprogrammed Auto-Ramp profile to be available for delivery, press YES. ("RE-PROGRAM!" will display if the profile has zero values.) If you do not want the preprogrammed Auto-Ramp profile to be available for delivery, press NO. The words "Allow INTERM?" will appear.
- g. If you want the preprogrammed Intermittent profile to be available for delivery, press YES. ("RE-PROGRAM!" will display if the profile has zero values.) If you do not want the preprogrammed Intermittent profile to be available for delivery, press NO. The words "Allow PRDS?" will appear.
- h. If you want the preprogrammed 15 Periods profile to be available for delivery, press YES. ("RE-PROGRAM!" will display if the profile has zero values.) If you do not want the preprogrammed 15 Periods profile to be available for delivery, press NO. The words "Allow PIGGY?" will appear.
- i. If you want the preprogrammed Piggyback profile to be available for delivery, press YES. ("RE-PROGRAM!" will display if the profile has zero values.) If you do not want the preprogrammed Piggyback profile to be available for delivery, press NO. The word "LOCKOUT" will appear. The pump is now set to deliver only those preprogrammed delivery profiles that you selected above. You may now turn off the pump or deliver a desired profile immediately by going to step 4b. below.

4) To choose and start the primary infusion:

- a. Switch the pump on by pressing ON/OFF. The words "SELF-TEST..." will appear briefly, followed by the name of the IV administration set that must be used with the pump ("ABBOTT SET!", "BAXTER SET!", "McGAW SET!", "SABRASET!", etc.). This is done in order to verify that the correct set is going to be used with the infusion.

- b. Press RUN/HOLD. Current pressure setting displays, immediately followed by the words "READY CONT" (or "READY RAMP" or "READY INTERM" or "READY PRDS", depending on which delivery profiles you chose when previously setting the Lockout mode) will be displayed.

You can now choose whether or not to deliver the displayed profile:

To infuse the displayed delivery profile	To infuse a different delivery profile
Press RUN/HOLD (or YES)	Press NO repeatedly until the profile you wish to be delivered is displayed. Press RUN/HOLD (or YES)

The infusion rate and the volume-to-be-infused of the delivery profile you chose will be displayed, alternating with the name of the selected infusion profile. This allows you to reconfirm the infusion's parameters.

- c. Press RUN/HOLD and the infusion will start. While infusing, the pump will display the infusion rate and the cumulative volume infused, alternating every 15 seconds with the name of the infusion profile.
- 5) To deliver a Piggyback (Secondary) infusion in Lockout Mode.
 - a. Piggyback must be selected during the lockout process in order to utilize the piggyback profile while in the lockout mode.
 - b. After the primary infusion ("Continuous", "Auto-Ramp", "Intermittent", "15 Periods") is started and at least 3 ml of fluid has been delivered, press RUN/HOLD and the primary infusion will halt.
 - c. Press the TIME/PIGGYBACK KEY. The word "PIGGYBACK?" will be displayed.

IMPORTANT! After the secondary IV set is primed, the volume in the secondary solution container must be equal to the preprogrammed Piggyback volume-to-be-infused. Otherwise, the automatic switch over from secondary (Piggyback) delivery to primary delivery will not correspond with the depletion of the secondary container.

- d. Press YES. The words "READY PIGGY" will be displayed.
- e. Press RUN/HOLD (or YES). The piggyback infusion rate and the total volume-to-be-infused (including the primary profile's remaining volume-to-be-infused) will be displayed, alternating with the word "PIGGYBACK". This provides you with an opportunity to reconfirm the infusion parameters.

- f. Press RUN/HOLD and the piggyback infusion will start. While infusing, the pump will display the piggyback infusion rate as well as the cumulative volume infused. This information will alternate every 15 seconds with the word "PIGGYBACK".
- g. When the piggyback infusion is complete, the pump automatically switches to the primary infusion rate. During the delivery of the primary infusion, the pump will display the preset primary infusion rate and the cumulative volume infused (including the Piggyback volume already delivered), alternating with the profile name or phase of the primary infusion that the pump is presently delivering i.e. "CONTINUOUS", "UP-RAMP", "PERIOD 2", "KVO DOSE 3", etc.

BEFORE PROGRAMMING

Before programming the various delivery profiles (Continuous, Auto-Ramp, Intermittent, 15 Periods, and Piggyback), you must know the following:

- A) How to enter the infusion's parameters.
- B) How to accept or change the infusion's previously programmed parameters.

A. Entering the infusion's parameters:

- 1) Use the NUMBERS keys to enter the infusion parameters' values.

Example: To enter a time parameter (i.e. Delay Delivery, Up-Time, etc.) of 1:30 (one hour and thirty minutes), press the NUMBERS keys 1, 3, and 0 sequentially.

Example: To enter a time parameter of 0:30 (thirty minutes), press the NUMBERS KEYS 3 and 0 sequentially.

Example: To enter a rate of 200 ml/hr, press the NUMBERS KEYS 2, 0, and 0 sequentially.

B. Accepting or changing the infusion's previously programmed parameters:

- 1) If you want the displayed value (rate, volume, time) to remain the same, press YES. The pump will retain the displayed parameter's value.

Example: If the pump is displaying "Rate: 200" and you wish the rate to remain 200 ml/hr, press YES. The profile will retain a delivery rate of 200 ml/hr.

- 2) If you wish to change the value of the displayed parameter, you may either press NO, which instructs the pump to clear the displayed parameter to zero, or use the NUMBERS keys to enter the new value directly over the displayed rate. If you make a mistake when keying the parameter's new value, press NO to clear the error and enter the new value again. When the new value you want is displayed, press YES.

Example: If the pump is displaying "Rate: 200" and you wish the rate to be 300 ml/hr, press the NUMBERS keys 3, 0, and 0 sequentially. The display will show "Rate: 300". Press YES to accept the rate of 300 ml/hr.

IMPORTANT! In order for the pump to retain in its memory any changes that you make to the infusion parameters, you must accept and/or change all of the profile's parameters, including "Bag Vol:". When the words "READY CONT" or "READY RAMP" or "READY INTERM" or "READY XX PRD" or "READY PIGGY" are shown, depending on which profile you are programming, the pump has accepted all values and they are retained in the pump's memory.

CONTINUOUS

This profile permits the programming and delivery of a single rate and a single volume. Programming this mode is possible only if the pump is in the Programmable mode. (See **Programmable/Lockout** on page 11).

- 1) Switch the pump on by pressing ON/OFF. The words "SELF-TEST..." followed by the name of the IV administration set that must be used with the pump will be displayed ("ABBOTT SET!", "BAXTER SET!", "McGAW SET!", "SABRASET!", etc.). To change the brand of IV administration set displayed, follow the Calibrations instructions on page 37.
- 2) Press YES. The word "PROGRAMMABLE" will be displayed.
- 3) Press YES. The words "PRESSURE:HI" or "PRESSURE:LO" (showing the current pressure alarm setting) will be displayed briefly followed by the word "CONTINUOUS?".
- 4) Press YES. The words "DELAY DLVRY?" will appear.
- 5) You can now choose whether or not to delay the start of the infusion:

If you want to delay delivery	If you don't want to delay delivery
<p>Press YES. The word "Delay: 00:00" will appear.</p> <p>Enter the delay time (in hours:minutes) and press YES when the desired delay time is displayed.</p>	<p>Press NO.</p>

The word "RATE?" will be displayed.

- 6) You can now choose between entering a delivery rate or a delivery time (the delivery time is the actual time of the infusion, excluding any delay time):

If you want to enter an infusion rate	If you want to enter an infusion time
<p>Press YES. "Rate: XXX" will be displayed. If the displayed rate is correct, press YES to accept it.</p> <p>To change the displayed rate, enter the desired infusion rate and press YES when the correct rate is displayed.</p>	<p>Press NO. The word "TIME?" will appear.</p> <p>Press YES and "Time: XX:XX" will be displayed. If the displayed time is correct, press YES to accept it.</p> <p>To change the displayed time, enter the desired infusion time (in hours:minutes) and press YES when the correct time is displayed.</p>

The pump will display "VOLUME: XXXX".

- 7) If the displayed volume is correct, press YES to accept it. To change the displayed volume, enter the desired volume and press YES when the correct volume is displayed.
- 8) The words "Bag Vol:" will appear alternating with either the word "Total:" or the word "Rate:". (If you previously entered a delivery rate, then the corresponding time will be shown as "Total:"; if you previously entered a delivery time, then the corresponding "Rate:" will be shown.) This gives you an opportunity to confirm all infusion parameters. Press NO to check or change the parameters.
- 9) Press YES. The words "READY CONT" will be displayed. All parameters have been accepted by the pump and will remain in the pump's memory until they are changed. The delay delivery value will be available only for the first time that this program is run. On all subsequent continuous deliveries, the program will immediately begin, unless a delay delivery is reprogrammed into the profile.
- 10) If the programmed infusion is for immediate delivery, press YES or RUN/HOLD when the words "READY CONT" are displayed. The infusion rate and the volume-to-be-infused will be displayed, alternating with the word "CONTINUOUS". This provides you with an opportunity to reconfirm the infusion parameters.
- 11) Press RUN/HOLD and the infusion will start. While infusing, the pump will display the infusion rate and the volume to be infused, alternating every 15 seconds with the word "CONTINUOUS".
- 12) If the programmed infusion is intended for a later delivery, switch the pump off by pressing ON-OFF. The programmed parameters will remain in the pump's memory until they are changed. (See Repeating the Delivery of an Infusion Profile of page 46 when it is time to begin this infusion.)

AUTO-RAMP

This profile allows the delivery of an infusion that automatically ramps up, reaches a level delivery rate, and then automatically ramps down. You choose the infusion's total volume, up and down ramp times, and maximum (level) rate or total delivery time. Programming this profile is possible only if the pump is in the Programmable mode. (See **Programmable/Lockout** mode on page 11).

NOTE: It is possible to begin the "DOWN-RAMP" phase of an infusion earlier than planned. This is possible when the infusion is in the "LEVEL RATE" phase. Early down-ramp can be requested whether the pump is in either the Programmable mode or the Lockout mode. (See step 15 below.)

- 1) Switch the pump on by pressing ON/OFF. The words "SELF-TEST..." followed by the name of the IV administration set that must be used with the pump will be displayed ("ABBOTT SET!", "BAXTER SET!", "McGAW SET!", "SABRASET!", etc.). To change the brand of IV administration set displayed, follow the Calibrations instructions on page 36.
- 2) Press YES. The word "PROGRAMMABLE" will be displayed.
- 3) Press YES. The words "PRESSURE:HI" or "PRESSURE:LO" (showing the current pressure alarm setting) will be displayed briefly, followed by the word "CONTINUOUS?".
- 4) Press NO. The words "AUTO-RAMP?" will be shown.
- 5) Press YES. The words "DELAY DLVRY?" will appear.
- 6) You can now choose whether or not you wish to delay the start of the delivery:

If you want to delay delivery	If you don't want to delay delivery
<p>Press YES. The word "Delay: 00:00" will appear.</p> <p>Enter the delay time (in hours:minutes) and press YES when the desired delay time is displayed.</p>	<p>Press NO.</p>

The words "INFUSE TIME?" will be displayed.

- 7) You can now choose between entering the delivery time of the infusion (including up-ramp and down-ramp times but excluding the delay time), or the maximum delivery rate (which is the highest rate, or the level rate at which you wish the Auto-Ramp program to deliver):

If you want to enter the delivery time	If you want to enter the maximum rate
<p>Press YES. "Time: XX:XX" will be displayed. If the displayed time is correct, press YES to accept it.</p> <p>To change the displayed time, enter the delivery time (in hours:minutes) and press YES when the desired delivery time is displayed.</p>	<p>Press NO. The words "MAX RATE?" will be displayed.</p> <p>Press YES. "MaxRate: XXX" will appear. If the displayed maximum rate is correct, press YES to accept it.</p> <p>To change it, enter the maximum delivery rate and press YES when the correct rate is displayed.</p>

The pump will display "Volume XXXX:".

- 8) If the displayed volume is correct, press YES to accept it. To change the displayed volume, enter the desired volume and press YES when the correct volume is displayed. "Up-T: X:XX" will be displayed.
- 9) If the displayed up-ramp time is correct, press YES to accept it. To change the up-ramp time, enter the desired time (in hours:minutes) and press YES when the correct time is displayed. The word "Down-T: X:XX" will appear.
- 10) If the displayed down-ramp time is correct, press YES to accept it. To change the down-ramp time, enter the desired time (in hours:minutes) and press YES when the correct time is displayed.
- 11) The words "Bag Vol: XXXX" alternating with the word "Total: XX:XX" or the word "MaxRate: XXX" will be shown (if you had entered the infusion time, the corresponding "MaxRate:" will be shown; if you had entered the maximum rate, the corresponding time will be shown as "Total:XX:XX"). This gives you an opportunity to confirm the infusion parameters. Press NO to check or change the parameters.
- 12) Press YES. The words "READY RAMP" will be displayed. All parameters have been accepted by the pump and will remain in the pump's memory until they are changed. The delay delivery value will be available only for the first time that this program is run. On all subsequent Auto-Ramp deliveries, the program will immediately begin with Up-Ramp, unless a delay delivery is reprogrammed into the profile.
- 13) If the programmed infusion is for immediate delivery, press YES or RUN/HOLD when the words "READY RAMP" are displayed. The maximum infusion rate and the volume-to-be-infused will be displayed, alternating with the words "AUTO-RAMP". This provides you with another opportunity to confirm the infusion parameters.

- 14) Press RUN/HOLD and the infusion will start. During the infusion, the pump will display the current infusion rate, as well as the cumulative volume infused. This information will alternate every 15 seconds with the words "UP-RAMP", "LEVEL RATE", or "DOWN-RAMP" (depending on which phase of the infusion regimen the pump is presently delivering).
- 15) If the programmed infusion is intended for a later delivery, switch the pump off by pressing ON/OFF. (See Repeating the Delivery of an Infusion Profile on page 45 when it is time to begin the infusion.)

To Begin Early Down-Ramping:

- 1) While the infusion is in the "LEVEL RATE" phase, it is possible to begin the "DOWN-RAMP" phase of the infusion earlier than programmed. Press RUN/HOLD. The infusion will halt and the words "DOWN RAMP?" will be displayed.
- 2) You can now choose either to begin the "DOWN-RAMP" phase now or to continue with the "LEVEL RATE" phase of the infusion.

If you want to begin the "DOWN-RAMP"	If you want to continue with the "LEVEL RATE"
<p>Press YES. The pump will display the infusion rate and the volume infused alternating with "**HOLD**".</p> <p>Press RUN/HOLD and the infusion will restart. The preprogrammed "DOWN-RAMP" phase of the infusion will begin immediately. The pump will display the infusion rate and the volume infused alternating every 15 seconds with the word "DOWN-RAMP".</p>	<p>Press NO. The pump will display the infusion rate and the volume infused alternating with "**HOLD**".</p> <p>Press RUN/HOLD and the infusion will restart at the same point where it was stopped. The pump will display the infusion rate and the volume infused alternating every 15 seconds with the words "LEVEL RATE".</p>

INTERMITTENT

This profile permits the delivery of a number of doses at set intervals (intermittently) over a period of time up to 48 hours with a preset KVO rate between each dose. You determine the infusion's total delivery time (up to 48 hours), number of doses, dose volume, dose time or dose rate, and KVO rate. Programming this profile is possible only if the pump is in the Programmable mode. (See **Programmable/Lockout** on page 11).

- 1) Switch the pump on by pressing ON/OFF. The words "SELF-TEST..." followed by the name of the IV administration set that must be used with the pump will be displayed ("ABBOTT SET!", "BAXTER SET!", "McGAW SET!", "SABRA SET!", etc.). To change the brand of IV administration set displayed, follow the Calibrations instructions on page 37.
- 2) Press YES. The word "PROGRAMMABLE" will be displayed.
- 3) Press YES. The words "PRESSURE:HI" or "PRESSURE:LO" (showing the current pressure alarm setting) will be displayed briefly followed by the word "CONTINUOUS?".
- 4) Press NO. The words "AUTO-RAMP?" will be shown.
- 5) Press NO. The word "INTERMITTENT?" will be displayed.
- 6) Press YES. The words "DELAY DLVRY?" will display.
- 7) You can now choose whether or not you wish to delay the start of the delivery:

If you want to delay delivery	If you don't want to delay delivery
<p>Press YES. The word "Delay: 00:00" will appear.</p> <p>Enter the delay time (in hours:minutes) and press YES when the desired time is displayed.</p>	<p>Press NO.</p>

- 8) The word "Total:24hrs?" will be displayed. You can now choose the total time period that you want the doses to be delivered over.

If you want a 24 hour delivery period	If you want a specific delivery period
Press the YES key.	<p>Press the No key. "OTHER TOTAL?" will display.</p> <p>Press YES. "Total: XX:XX" will display. If the displayed time is correct, press YES to accept it.</p> <p>To change the displayed time, enter the total delivery period that you want (in hours:minutes) and press YES when the correct time is displayed.</p>

- 9) "# Doses: X" will appear. If the displayed number of doses is correct, press YES to accept it. To change the displayed doses, enter the total number of doses that you wish to deliver and press YES when the correct number of doses are displayed.

If you program the number of doses to be one, you may program the "DosTime:" to be equal to the total delivery period programmed. Example: Program a specific delivery period of 8:00 (eight hours); # of doses = 1; then the dose time may be up to 8:00 (eight hours).

- 10) The words "DOSE TIME?" will be displayed.
- 11) You can now choose between entering a delivery time or a delivery rate for a single dose (all of the doses will have the same delivery time or the same delivery rate):

If you want to enter a dose time	If you want to enter a dose rate
<p>Press YES. "DosTime: XX:XX" will be displayed. If the displayed time is correct, press YES to accept it.</p> <p>To change the displayed time, enter the dose time you want (in hours:minutes) and press YES when the correct delivery time of the dose is displayed.</p>	<p>Press NO. The words "DOSE RATE?" will be displayed.</p> <p>Press YES. "DosRate: XXX" will appear. If the displayed rate is correct, press YES to accept it.</p> <p>To change the displayed rate, enter the dose rate and press YES when the correct rate is displayed.</p>

"Dos Vol: XXXX" will appear. This is the volume that will be delivered for each dose.

- 12) If the displayed dose volume is correct, press YES to accept it. To change the displayed dose volume, enter the dose volume you want and press YES when the correct volume is displayed. "KVO Rate: X" will be displayed. This is the rate at which the pump will deliver between the doses and during the delay delivery time (if you chose to delay the start of the infusion).
- 13) If the displayed KVO rate is correct, press YES to accept it. To change the displayed KVO rate, enter the desired KVO rate (1-9 ml/hr) and press YES when the correct KVO rate is displayed.
- 14) The words "Bag Vol:" alternating with "DosTime:" or "DosRate:" will be shown (if you had entered a dose time, the corresponding "DosRate:" will be shown; if you had entered a dose rate, the corresponding "DosTime:" will be shown). This gives you an opportunity to confirm the infusion parameters. Press NO to check or change the parameters.

NOTE: You must enter a KVO rate that is less than the dose rate. If the entered KVO rate is higher than the dose rate, the pump will not accept the entered parameter (see "KVO TOO HIGH" on page 44).

- 15) Press YES. The words "READY INTERM" will be displayed. All parameters have been accepted by the pump and will remain in the pump's memory until they are changed. The delay delivery value will be available only for the first time that this program is run. On all subsequent intermittent deliveries, the program will immediately begin with Dose 1, unless a delay delivery is reprogrammed into the profile.
- 16) If the programmed infusion is for immediate delivery, press YES or RUN/HOLD. The dose rate and the total volume-to-be-infused will be displayed, alternating with the word "INTERMITTENT". This provides you with an opportunity to reconfirm the infusion parameters.
- 17) Press RUN/HOLD and the infusion will start. While infusing, the pump will display the current infusion rate, as well as the cumulative volume infused. This information will alternate every 15 seconds with the words "DOSE 1", "KVO DOSE 1", "DOSE 2", "KVO DOSE 2", etc. (depending on which phase of the infusion regimen the pump is presently delivering).
- 18) If the programmed infusion is intended for a later delivery, switch the pump off by pressing ON/OFF. See Repeating the Delivery of an Infusion Profile on page 45 when it is time to begin the infusion.

15 PERIODS

This profile permits you to program and infuse up to fifteen separate rates and volumes, or times and volumes to be delivered sequentially (for various custom regimens). Programming this profile is possible only if the pump is in the Programmable mode. (See Programmable/Lockout on page 11).

- 1) Switch the pump on by pressing ON/OFF. The words "SELF-TEST..." followed by the name of the IV administration set that must be used with the pump will be displayed ("ABBOTT SET!", "BAXTER SET!", "McGAW SET!", "SABRASET!", etc.). To change the brand of IV administration set displayed, follow the Calibrations instructions on page 37.
- 2) Press YES. The word "PROGRAMMABLE" will be displayed.
- 3) Press YES. The words "PRESSURE:HI" or "PRESSURE:LO" (showing the current pressure alarm setting) will be displayed briefly followed by the word "CONTINUOUS?".
- 4) Press NO. The words "AUTO-RAMP?" will be shown.
- 5) Press NO. The word "INTERMITTENT?" will be displayed.
- 6) Press NO. The words "15 PERIODS?" will be shown.
- 7) Press YES. The words "DELAY DLVRY?" will appear.
- 8) You can now choose whether or not you wish to delay the start of the delivery:

If you want to delay delivery	If you don't want to delay delivery
<p>Press YES. The word "Delay: 00:00" will appear.</p> <p>Enter the delay time (in hours:minutes) and press YES when the desired delay time is displayed.</p>	<p>Press NO.</p>

The word "RATE?" will be displayed.

- 9) You can now choose between programming based on delivery rates or delivery times for the 15 Periods:

If you want to enter infusion rates	If you want to enter infusion times
<p>Press YES. "P 1:Rate: XXX" (i.e. Period 1:Rate) will be displayed. If the displayed rate for period 1 is correct, press YES to accept it.</p> <p>To change the displayed rate, enter the delivery rate you want for the first period and press YES when the desired delivery rate is displayed.</p>	<p>Press NO. The word "TIME?" will be displayed.</p> <p>Press YES. "P 1:Tm: XX:XX" will appear. If the displayed time for period 1 is correct, press YES to accept it.</p> <p>To change the displayed time, enter the delivery time you want for the first period and press YES when the desired delivery time is displayed.</p>

"P 1:Vol: XXX" (i.e. Period 1:Volume" will be shown.)

- 10) If the displayed volume for period 1 is correct, press YES to accept it. To change the displayed volume Enter the desired volume for the first period and press YES when the correct volume is displayed. The word "P 2:Rate" or the word "P 2:Tm" will be displayed, depending on whether you chose to program in rate or time.
- 11) Continue until the delivery times and volumes, or rates and volumes for each period have been identified. This pathway may end after any period.
- 12) After the last period is programmed, such as "P 1:Vol", program the next period as zero time or rate. The pump will display "P 2:Rate: X" or "P 2:Tm X:XX"
- 13) Press NO to clear the displayed value to "0".
- 14) Press YES to accept the zero value.
- 15) The words "Bag Vol:" alternating with the word "Total:" will be shown. This gives you an opportunity to confirm or change the infusion parameters. Press NO to check or change the parameters.
- 16) Press YES. The words "READY XX PRD" will be displayed (where "XX" is the number of periods that you programmed). In our example, the words "READY 01 PRD" will be displayed. All parameters have been accepted by the pump and will remain in the pump's memory until they are changed. The delay delivery value will be available only for the first time that this program is run. On all subsequent deliveries, the program will immediately begin with Period 1, unless a delay delivery is reprogrammed into the profile.
- 17) If you program all fifteen periods, the words "READY 15 PRD" will appear automatically when YES is pressed after the last volume ("P 15:Vol") is entered.

- 18) If the programmed infusion is for immediate delivery, press YES or RUN/HOLD when the words "READY XX PRD" are displayed. The first period's infusion rate and the total volume-to-be-infused (i.e. an accumulation of all the volumes from all the programmed periods including the KVO volume of the delay time) will be displayed, alternating with the words "15 PERIODS". This provides you with an opportunity to reconfirm the infusion parameters.
- 19) Press RUN/HOLD and the infusion will start. While infusing, the pump will display the infusion rate of the period which the pump is presently infusing, as well as the cumulative volume infused. This information will alternate every 15 seconds with the words "PERIOD 1", "PERIOD 2", etc., depending on which period is being infused at the moment.
- 20) If the programmed infusion is intended for a later delivery, switch the pump off by pressing ON/OFF. See Repeating the Delivery of an Infusion Profile on page 46 when it is time to begin the infusion.

PIGGYBACK

This profile permits you to program and deliver a secondary (Piggyback) infusion. The pump automatically switches to infusing the primary infusion rate when the secondary infusion is complete. Programming this profile is possible only if the pump is in the Programmable mode. (See Programmable/Lockout on page 11).

The secondary infusion can be programmed and delivered before and/or during the primary infusion. Therefore, there are two ways to access the Piggyback mode:

- A. If you want to program and deliver the secondary infusion **BEFORE** the primary infusion begins:

IMPORTANT! When delivering a piggyback (secondary) infusion **BEFORE** the primary infusion begins, the FLOW SENSOR must be positioned on the secondary (piggyback) IV set's drip chamber. Use ONLY secondary IV sets with drip chambers.

- 1) Switch the pump on by pressing ON/OFF.
- 2) Program the primary infusion according to the instructions for the desired profile being used: Continuous profile on page 16, Auto-Ramp profile on page 18, Intermittent profile on page 21, or 15 Periods profile on page 24. Stop when the words "READY CONT", "READY RAMP", "READY INTERM", or "READY XX PRD" is displayed (depending on which primary infusion you programmed).
- 3) Press the TIME/PIGGYBACK key. The word "PIGGYBACK?" will appear.
- 4) Press YES. The word "DELAY DLVRY?" will appear.
- 5) You can now choose whether or not you wish to delay the start of the piggyback infusion:

If you want to delay delivery	If you don't want to delay delivery
<p>Press YES. The word "Delay: 00:00" will appear.</p> <p>Enter the delay time (in hours:minutes) and press YES when the desired delay time is displayed.</p>	<p>Press NO.</p>

The word "RATE?" will be displayed.

- 6) You can now choose between entering a delivery rate or a delivery time (the delivery time is the actual time of the piggyback infusion, excluding the delay delivery time and it does not affect the delivery rate of the primary infusion):

If you want to enter an infusion rate	If you want to enter an infusion time
<p>Press YES. "Rate: XXX" will be displayed. If this rate is correct, press YES to accept it.</p> <p>To change the piggyback rate, enter the rate you want for the piggyback and press YES when the desired delivery rate is displayed.</p>	<p>Press NO. The word "TIME?" will be displayed.</p> <p>Press YES. "Time: XX:XX" will appear. If this time is correct, press YES to accept it.</p> <p>To change the displayed time, enter the delivery time you want for the piggyback and press YES when the desired delivery time is displayed.</p>

"Volume: XXXX" will appear. If this volume is correct, press YES to accept it.

- 7) To change the displayed piggyback volume, enter the desired piggyback volume and press YES when the correct volume is displayed.
- 8) The words "Bag Vol: XXX" alternating with "Total: XX:XX" or "Rate XXX:" will be shown (if you had entered an infusion time, the corresponding "Rate: XXX" will be shown; if you had entered an infusion rate, the corresponding time would be displayed as "Total: XX:XX"). This gives you an opportunity to confirm the piggyback infusion parameters. Press NO to check or change the parameters.

IMPORTANT! After the secondary IV set is primed, the volume in the secondary solution container must be equal to the Piggyback "Bag Vol:" displayed. Otherwise, the automatic switch over from secondary (Piggyback) delivery to primary delivery will not correspond with the depletion of the secondary container.

- 9) Press YES and the words "READY PIGGY" will be displayed. All parameters have been accepted by the pump and will remain in the pump's memory until they are changed. The delay delivery value will be available only for the first time that this program is run. On all subsequent deliveries, the program will immediately begin with Piggyback, unless a delay delivery is reprogrammed into the profile.
- 10) If the programmed infusion is for immediate delivery, press YES or RUN/HOLD when the words "READY PIGGY" are displayed. The Piggyback infusion rate and the total volume-to-be-infused (including the primary profile's volume-to-be-infused) will be displayed, alternating with the word "PIGGYBACK". This provides you with an opportunity to reconfirm the infusion parameters.

- 11) Press RUN/HOLD and the piggyback infusion will start. While infusing, the pump will display the infusion rate, as well as the cumulative volume infused. This information will alternate every 15 seconds with the word "PIGGYBACK".
- 12) When the secondary infusion is complete, the pump automatically switches to delivering the primary infusion rate. During the delivery of the primary infusion, the pump will display the preset primary infusion rate and the cumulative volume infused (including the Piggyback volume already delivered), alternating with the phase of the primary infusion the pump is presently delivering ("UP-RAMP", "PERIOD 1", "DOSE 1", etc.).

B. If you want to program and deliver the secondary infusion DURING the primary infusion:

WARNING! The FLOW SENSOR must be positioned on the primary IV set's drip chamber at the start of the primary infusion. The FLOW SENSOR may be disabled after the first 3ml of fluid delivery.

Therefore, when initiating the Piggyback (secondary) infusion during the primary infusion, confirm that there is fluid flow by checking for drops in the secondary IV set's drip chamber. The pump will NOT alarm for Empty Bag/Up Occlusion or High Rate while delivering a secondary infusion during the primary infusion unless the pump is turned off or the door is opened during the secondary infusion. (See Alarm Conditions on page 39)

- 1) Press RUN/HOLD to halt the primary infusion.
- 2) Press the TIME/PIGGYBACK key. The word "PIGGYBACK?" will appear.
- 3) Press YES. The words "DELAY DLVRY?" will appear.
- 4) You can now choose whether or not you wish to delay the start of the Piggyback infusion. If yes, the primary infusion is also on hold.

If you want to delay delivery	If you don't want to delay delivery
Press YES. The word "Delay: 00:00" will appear. Enter the delay time (in hours:minutes) and press YES when the desired delay time is displayed.	Press NO.

The word "RATE?" will be displayed.

- 5) You can now choose between entering a delivery rate or a delivery time (excluding the delay delivery time):

If you want to enter an infusion rate	If you want to enter an infusion time
<p>Press YES. "Rate: XXX" will be displayed. If this rate is correct, press YES to accept it.</p> <p>To change the displayed rate, enter the delivery rate you want for the piggyback delivery and press YES when the desired delivery rate is displayed.</p>	<p>Press NO. The word "TIME?" will be displayed.</p> <p>Press YES. "Time: XX:XX" will appear. If this displayed time is correct, press YES to accept it.</p> <p>To change the displayed time, enter the delivery time you want for the piggyback delivery (in hours:minutes) and press YES when the desired delivery time is displayed.</p>

"Volume XXXX:" will appear. If the displayed volume is correct, press YES to accept it.

- 6) To change the displayed volume, enter the desired Piggyback volume and press YES when the correct volume is displayed.
- 7) The words "Bag Vol: XXXX", alternating with "Total: XX:XX" or "Rate: XXX" will be shown. (If you had entered an infusion time, the corresponding "Rate: XXX" will be shown; if you had entered an infusion rate, the corresponding time would be displayed as "Total:XX:XX".) This gives you an opportunity to confirm the piggyback infusion parameters. Press NO to check or change the parameters.

IMPORTANT! After the secondary IV set is primed, the volume in the secondary solution container must be equal to the Piggyback "Bag Vol:" displayed. Otherwise, the automatic switch over from secondary (Piggyback) delivery to primary delivery will not correspond with the depletion of the secondary container.

- 8) Press YES and the words "READY PIGGY" will be displayed. All parameters have been accepted by the pump and will remain in the pump's memory until they are changed. The delay delivery value will be available only for the first time that this program is run. On all subsequent deliveries, the program will immediately begin with Piggyback, unless a delay delivery is reprogrammed into the profile.
- 9) Press YES or RUN/HOLD. The Piggyback infusion rate and the total volume-to-be-infused (including the primary mode's remaining volume-to-be-infused) will be displayed, alternating with the word "PIGGYBACK". This provides you with an opportunity to reconfirm the infusion parameters.

- 10) Press RUN/HOLD and the infusion will start. While infusing, the pump will display the infusion rate, as well as the volume infused. This information will alternate every 15 seconds with the word "PIGGYBACK".
- 11) When the secondary infusion is completed, the pump automatically switches to delivering the primary infusion rate. During the delivery of the primary infusion, the pump will display the primary infusion rate and the cumulative volume infused (including the Piggyback volume already delivered), alternating with the phase of the primary infusion the pump is presently delivering ("LEVEL RATE", "PERIOD 2", "KVO DOSE 3", etc.).

TITRATION

In Titration mode, you can change the delivery rate and/or the volume-to-be-infused of a Continuous profile or a Piggyback profile that is presently being delivered. You can also change the delivery rate and/or the volume-to-be infused before the start of and after the completion of a Continuous profile. Titration is only available when the pump is in Programmable mode.

There are four ways to access the Titration mode:

- A) Changing only the delivery rate without stopping the infusion (Continuous or Piggyback profiles).
- B) Changing the delivery rate and/or the volume-to-be-infused when the infusion is put into HOLD (Continuous or Piggyback profiles).
- C) Changing the delivery rate and/or the volume-to-be-infused before the infusion begins (Continuous profile only).
- D) Changing the delivery rate and/or the volume-to-be-infused after the infusion is complete (Continuous profile only).

A. Changing only the delivery rate DURING an infusion: (Continuous or Piggyback profile).

- 1) While the pump is infusing, press YES. The word "TITRATION?" will be displayed.
- 2) Press YES. "NewRate: 0" will be displayed. You can now either change the infusion rate or make NO change.

To change the infusion rate	To make NO change
Enter the new infusion rate and press YES to accept it.	Press either YES or NO. The pump will act as if you never tried to change the rate at all.

- 3) The infusion will continue delivering without interruption and automatically use the new delivery rate. The pump will display the new infusion rate and the cumulative volume infused, alternating every 15 seconds with the name of the profile you are currently delivering ("CONTINUOUS" or "PIGGYBACK").
 - 4) The new rate will be placed into the pump's memory for the profile that is being delivered (Continuous or Piggyback).
- B. Changing the delivery rate and/or the volume-to-be-infused AFTER putting the infusion on HOLD: (Continuous or Piggyback).**

- 1) While the pump is infusing, press RUN/HOLD. The infusion will halt.
- 2) Press YES. The word "TITRATION?" will be displayed.
- 3) Press YES. "NewRate: 0" will be displayed.
- 4) You can now either change the infusion rate or make NO change.

To change the infusion rate	To make NO change
Enter the new infusion rate and press YES to accept it.	Press either YES or NO. The pump will act as if you never tried to change the rate at all.

"NewVol: 0" will be displayed.

- 5) You can now either change the volume-to-be-infused or make NO change.

To change the volume-to-be-infused	To make NO change
Enter the new volume-to-be-infused and press YES to accept it.	Press either YES or NO. The pump will act as if you never tried to change the volume at all.

- 6) The pump will display the new infusion rate and the cumulative volume infused, alternating with the word "**HOLD**".

NOTE: The new volume-to-be-infused will replace the volume-to-be-infused remaining in the profile. The total volume of the infusion will be the new volume-to-be-infused plus the volume infused up to the time of titration. For example: the initial volume-to-be-infused was 1000 ml. After infusing a volume of 100 ml, a new volume-to-be-infused of 1200 ml is titrated. The complete infusion will be 1300 ml (100 ml before titration plus 1200 ml after titration).

- 7) Press RUN/HOLD and the infusion will restart using the new delivery rate and will continue to infuse until the new volume-to-be-infused is delivered. While infusing, the pump will display the new infusion rate and the cumulative volume infused, alternating every 15 seconds with the name of the profile you are currently delivering ("CONTINUOUS" or "PIGGYBACK").
- 8) The new rate and volume-to-be-infused will be placed into the pump's memory for the profile that is being delivered (Continuous or Piggyback).

NOTE: To verify the new volume-to-be-infused, press the **TIME/PIGGYBACK KEY** after

restarting the infusion. The new volume-to-be-infused will be displayed followed by the time remaining until the end of the infusion.

C. Changing the delivery rate and/or the volume-to-be-infused before the infusion begins: (Continuous profile only).

- 1) Switch the pump on by pressing ON/OFF. The words "SELF TEST..." followed by the name of the IV administration set that must be used with the pump will be displayed ("ABBOTT SET!", "BAXTER SET", "McGAW SET", "SABRASET!", etc.). To change the brand of IV administration set displayed, follow the Calibrations instructions on page 36.
- 2) Press RUN/HOLD. The infusion rate and the volume-to-be-infused will be displayed, alternating with the word "CONTINUOUS".
- 3) Press YES. The word "TITRATION?" will be displayed.
- 4) Press YES. "NewRate: 0" will be displayed.
- 5) You can now either change the infusion rate or make NO change.

To change the infusion rate	To make NO change
Enter the new infusion rate and press YES to accept it.	Press either YES or NO. The pump will act as if you never tried to change the rate at all.

"NewVol: 0" will be displayed.

- 6) You can now either change the volume-to-be-infused or make NO change.

To change the volume-to-be-infused	To make NO change
Enter the volume-to-be-infused and press YES for accept it.	Press either YES or NO. The pump will act as if you never tried to change the volume at all.

- 7) The pump will display the new infusion rate and the new volume-to-be-infused, alternating with the word "CONTINUOUS".
- 8) Press RUN/HOLD and the infusion will start. While infusing, the pump will display the new infusion rate and the cumulative volume infused, alternating every 15 seconds with the word "CONTINUOUS".

- 9) The new rate and volume-to-be-infused will be placed into the pump's memory for the Continuous profile.

D. Changing the delivery rate and the volume-to-be-infused after the infusion is complete: (Continuous profile only).

- 1) When the infusion is complete, the pump will display "COMPLTE XXXX".
- 2) Press RUN/HOLD. The infusion rate and the volume-to-be-infused will be displayed, alternating with the word "CONTINUOUS".
- 3) Press YES. The word "TITRATION?" will be displayed.
- 4) Press YES. "NewRate: 0" will be displayed.
- 5) You can now either change the infusion rate or make NO change.

To change the infusion rate	To make NO change
Entr the new infusion rate and press YES to accept it.	Press either YES or NO. The pump will act as if you never tried to change the rate at all.

"NewVol: 0" will be displayed.

- 6) You can now either change the volume-to-be-infused or make NO change.

To change the volume-to-be-infused	To make NO change
Enter the new volume-to-be-infused and press YES to accept it.	Press either YES or NO. The pump will act as if you never tried to change the volume at all.

- 7) The pump will display the new infusion rate and the new volume-to-be-infused, alternating with the word "CONTINUOUS".
- 8) Press RUN/HOLD and the infusion will start. While infusing, the pump will display the new infusion rate and the cumulative volume infused, alternating every 15 seconds with the word "CONTINUOUS".
- 9) The new rate and the volume-to-be-infused will be automatically defaulted to the pump's memory for the Continuous profile.

CALIBRATIONS

The Calibrations mode permits:

- A) Selection of a standard, straight-line IV administration set setting (Abbott, Baxter, McGaw, Sabraset, etc.) within the Sabratek 3030 so that that manufacturer's administration sets may be used.

WARNING! USE ONLY the IV administration set indicated on the display. DO NOT USE THE PUMP if the IV administration set to be used with the pump and the IV set indicated on the display are not the same.

NOTE: When the pump is set for use with a Sabraset, the flow sensor is disabled and the pump will NOT alarm for an Empty Bag/ Up Occlusion or High Rate. (See Alarm Conditions on page 39, and Flow Sensor in Pump Features and Prompts on page 44).

- B) Choosing English or Eng/Spanish as the language in which the pump will display its information. (Other languages are optional.)

A. To access the Calibrations mode and change the brand of IV administration set settings:

- 1) Switch the pump on by pressing ON/OFF. The words "SELF-TEST" will be displayed briefly, followed by the name of the IV administration set setting ("ABBOTT SET!", "BAXTER SET!", "McGAW SET!", "SABRASET!", etc.). This is done in order to verify that the correct set is going to be used with the infusion.
- 2) Press NO KEY. The words "OTHER SET?" will be displayed.
- 3) Press YES. The words "ENTER CODE" will appear.
- 4) Press the NUMBERS keys 9, 1, and 1 sequentially. The words "IV SET:" will appear briefly, followed by the name of the IV set currently being used.
- 5) Press NO repeatedly to display the available brands of IV sets.
- 6) When the desired IV administration set is displayed, press YES. The pump is now ready for use with the IV administration set you chose. The word "LANGUAGE:" will appear briefly, followed by the word "ENGLISH?".
- 7) Press NO to display the available languages ("ENGLISH" or "ENG/SPANISH?").
- 8) When the desired language is displayed, press YES.
- 9) The name of the IV administration set you previously selected in step 6 will be displayed. You may now continue regular pump operation (i.e. the pump will return to the point where you started the calibration procedure) or switch the pump off by pressing ON/OFF.

PRESSURE

This mode permits you to choose between a low pressure alarm setting (where the down occlusion alarm is set to 8 psi, +/- 5 psi) or a high pressure alarm setting (where the down occlusion alarm is set to 20 psi, +/- 5 psi). Accessing the Pressure mode for the purpose of changing the pressure alarm setting is only possible when the pump is in the Programmable mode (see **Programmable/Lockout** on page 11). Also, pressing the **PRESSURE KEY** while the pump is infusing (in either Lockout or Programmable mode), will briefly display the current pressure setting.

A. If you want to change the pressure alarm setting BEFORE the infusion begins:

- 1) Switch the pump on by pressing the **ON/OFF KEY**.
- 2) Program the primary infusion according to the instructions for **Continuous** profile on page 17, **Auto-Ramp** profile on page 19, **Intermittent** profile on page 22, or **15 Periods** profile on page 25. Stop when the words "READY CONT", "READY RAMP", "READY INTERM", or "READY XX PRD" are displayed (depending on which primary infusion you programmed).
- 3) Press the **PRESSURE** key. The words "FIX PRSSURE?" will appear.
- 4) Press **YES**. The words "PRESSURE:HI?" or "PRESSURE:LO?" will appear, indicating the present setting.
- 5) Press **NO** repeatedly to display the available pressure settings.
- 6) When the desired pressure setting is displayed, press **YES**. The pump is now ready for use with the pressure setting you chose. The pump will display the current "READY" screen.
- 7) You may continue to program the pump or switch the pump off by pressing **ON/OFF**.

B. If you want to change the pressure alarm setting AFTER the infusion begins:

- 1) Press **RUN/HOLD** to halt the infusion. The display will show the rate and the volume that has been infused until this point, alternating with the word "**HOLD**".
- 2) Press the **PRESSURE** key. The words "FIX PRSSURE?" will appear.
- 3) Press **YES**. The words "PRESSURE:HI?" or "PRESSURE:LO?" will appear, indicating the present setting.
- 4) Press **NO** repeatedly to display the available pressure settings.
- 5) When the desired pressure setting is displayed, press **YES**. The pump is now ready for use with the pressure setting you chose.
- 6) Press **RUN/HOLD** to resume the infusion.

C. To display the current pressure setting during an infusion:

- 1) During the infusion, press the **PRESSURE** key. The pump will display "PRESSURE:HI" or "PRESSURE:LO" briefly, to indicate the current pressure setting, then return to the infusion screen.

ALARM CONDITIONS

An alarm notifies you, visually and audibly, that the alarm condition shown on the display has occurred and that corrective action must be taken to continue the infusion. The following table lists possible alarm situations and solutions for each alarm and indicator. However, this guide is for troubleshooting only and may not describe every possible situation or solution. If a problem cannot be resolved, the pump must be referred to a qualified technician. When an alarm conditions occurs, the following steps are recommended:

- 1) Read the alarm message displayed.
- 2) Press RUN/HOLD to silence the audible alarm. The word **"*HOLD*"** will flash intermittently with the alarm message.
- 3) Determine the cause of the alarm using this **Alarm Conditions** guide.
- 4) Correct the cause of the alarm using this **Alarm Conditions** guide.
- 5) Press RUN/HOLD to restart the infusion.

ALARM MESSAGE	PROBLEM	SOLUTION
AIR-IN-LINE	Air in tubing.	Expel air according to protocol.
	Upstream roller clamp is closed.	Open roller clamp.
	IV set is not positioned in the air-in-line sensor.	Position IV set in the sensor.
	Blockage in upper tubing or in attached peripheral.	Replace the IV set or the attached peripheral.
	Air-in-line sensor malfunction.	Refer the pump to a qualified technician.
COMPLTE XXXX	Infusion has completed.	Switch pump off.
DOOR OPEN	Pump door is not properly closed.	Close outer pump door.

ALARM MESSAGE	PROBLEM	SOLUTION
DOWN OCCLUSN	Lower clamp is closed.	Open clamp.
	Kink in lower tubing.	Straighten the tubing between the pump and the patient.
	Blockage in lower tubing, filter, or in attached peripheral.	Replace the IV administration set or the attached peripheral.
	IV set is placed backwards in the pumping mechanism.	Change the direction of the set.
	Block in access device.	Check IV access device according to protocol.
EMPTY BATTERY	Battery does not have enough power to drive the pump motor.	Plug pump's power cord into an AC power source immediately.
HIGH RATE (occurs only when the flow sensor is enabled)	Wrong IV administration set is being used.	Check compatible sets listing at the front of this manual. Change IV set or choose a different administration set setting. (See Calibrations mode on page 36).
	Flow sensor placed below the fluid line of drip chamber.	Raise the position of the flow sensor on the drip chamber.
	IV set has an upstream leak.	Replace the IV administration set.
	Flow sensor malfunction.	Replace the flow sensor.
HOLD	Pump is on hold for more than 2 minutes.	Press RUN/HOLD to restart the infusion.

ALARM MESSAGE	PROBLEM	SOLUTION
LOW BATTERY	There are only a few minutes of battery power left.	Connect the pump to a 110v AC power source as soon as possible.
MALFUNCTN #	An internal malfunction has been detected by the pump.	Switch the pump off then on again. Restart the infusion. If the alarm persists, discontinue use and refer the pump to a qualified technician.
MOVE TUBING	IV tubing inside the pumping mechanism is crushed. Downstream occlusion.	Move a fresh section of tubing into the pumping mechanism. See DOWN OCCLUSN alarm message above.
RECALIBRATE!	The pump cannot use the IV administration set for which it is calibrated due to an internal malfunction.	You can select a different IV administration set (see Calibrations mode on page 36) but you must use that different set! If the alarm persists, refer the pump to a qualified technician.
UP OCCLUSN/EMPTY BAG (occurs only when the flow sensor is enabled)	Wrong IV set is being used. Solution container is empty. IV set is placed backwards in the pumping mechanism.	Check compatible sets listing at the front of this manual. Change IV set or choose a different administration setting. (See Calibrations mode on page 36). Replace with a full solution container. Change the direction of the IV set.

ALARM MESSAGE	PROBLEM	SOLUTION
(continued) UP OCCLUSN/EMPTY BAG (occurs only when the flow sensor is enabled)	Upstream clamp is closed.	Open clamp.
	Kink in upper tubing.	Straighten the tubing between the pump and the patient
	Inadequate venting of air into the solution bottle.	Provide proper air venting for the IV solution bottle.
	Blockage in upper tubing or in attached peripheral.	Replace IV administration set or the attached peripheral.
	Flow sensor placed below the fluid line of the drip chamber.	Raise the position of the flow sensor on the drip chamber.
	Flow sensor not connected to flow sensor jack in the back of the pump.	Firmly insert flow sensor plug into flow sensor jack.
	Flow sensor malfunction.	Replace the flow sensor.
	Misalignment of the flow sensor on the drip chamber.	Reposition the flow sensor to a level position.
	Flow sensor on the wrong drip chamber during a piggyback infusion.	Place the flow sensor on the drip chamber of the solution to be infused.

If the cause of the alarm cannot be corrected, refer the pump to an authorized technician for repair.

Warning! Never open the pump's cover. Electric shock may occur causing severe injury or death. Refer all servicing to an authorized technician.

PUMP FEATURES & PROMPTS

The Sabratek 3030 has various features, functions and user prompts which are arranged alphabetically and explained in detail on the following pages. This section should be read carefully in order to get a better understanding of the pump's finer points.

ACCURACY

The Sabratek 3030's accuracy of delivery is affected by the quality of the IV administration set being used with the pump. Sabratek Corporation guarantees the quality and accuracy of its own sets only and is not liable for the quality or accuracy of other brands of IV administration sets being used with its pump.

IMPORTANT! If the pump is stopped for more than an hour with the door closed on the tubing, a new section of the IV set's tubing should be positioned along the inner door or the pump may under infuse.

AIR-IN-LINE DETECTOR

Detects air inside the IV set's tubing. To avoid nuisance alarms caused by "champagne" bubbles in the IV set's tubing, the air-in-line detector is calibrated to detect air bubbles that are 0.1 ml or larger.

"Bag Vol: XXXX"

The displayed bag volume includes all of the fluid that will be delivered during a profile, including the KVO volume that will be infused during a delay delivery phase. The pump automatically calculates and displays the bag volume after all the parameters of an infusion profile are entered.

For example, in an Intermittent profile, the displayed bag volume includes the volumes of all the doses, the volume of the KVO between the doses, and the KVO volume that will be delivered during the delay phase, if it was programmed. Therefore, the displayed bag volume is the minimum amount of fluid that the solution bag/bottle must contain to complete the programmed infusion. It does not include overfill the volume required for priming the administration set. (See **VOLUME TO BE INFUSED** for related information.)

"CLEAR INFSD?"

See **CLEARING THE VOLUME INFUSED DISPLAY**.

CLEARING THE VOLUME INFUSED DISPLAY

The volume infused display can be reset (cleared to zero) only when the pump is in Programmable mode. (See **Programmable/Lockout** on page 11). To clear the volume infused display to zero, press RUN/HOLD to halt the infusion. Press NO, the pump will then display the words "CLEAR INFSD?". Press YES, the pump will then reset the volume infused display to zero. This will not affect the remaining volume to be infused. Press RUN/HOLD to restart the infusion.

"COMPLTE XXXX"

When the infusion is complete, "COMPLTE XXXX" will be displayed (where "XXXX" is the total delivered volume), an audible alarm will sound and the pump will go into KVO mode. The pump will remain in KVO mode until it is switched off; KVO volume infused will be added automatically to "XXXX".

CPU INDICATOR

This indicator lights up when there is a malfunction within the pump's computer system. If the CPU indicator is illuminated, switch the pump off then on again. If the CPU light indicator illuminates again, refer the pump to a qualified technician.

"DELAY DLVRY?"

The pump allows you to delay (postpone) the starting time of any infusion profile. (See **Continuous** profile on page 17, **Auto-Ramp** profile on page 19, **Intermittent** profile on page 22, **15 Periods** profile on page 25, or **Piggyback** profile on page 28). When the delay time you requested is finished, the pump automatically starts delivering the primary infusion profile's parameters.

During the delay period, the pump infuses at a KVO rate and the volume that will be infused during the delay time is automatically added by the pump to the calculated bag volume (see **"Bag Vol:"**). For example, if it's 10:00AM and an infusion needs to start at 11:00AM, when you program the infusion parameters you can enter a delay delivery time of one hour. When RUN/HOLD is pressed to start the infusion, the pump will display "DLY: 01:00:00" (hours:minutes:seconds), and the delay time will immediately start to count down. At the end of the delay time, the pump will start infusing the delivery profile.

If you switch off the pump during the delay delivery phase (press RUN/HOLD to halt the delay then press ON/OFF to switch off the pump), when you turn the back on, the delay delivery will not resume. The delay phase is not retained in the pump's memory. Instead, the name of the IV administration set that must be used with the pump will be displayed and the infusion will be immediately available for delivery.

"DLY:XX:XX:XX"

See "DELAY DLVRY?"

"DOWN-RAMP?"

You can start the DOWN-RAMP phase of the AUTO RAMP profile at any point during the LEVEL RATE phase of the infusion. During "LEVEL RATE" press RUN/HOLD. The words "DOWN- RAMP?" will be displayed. (See Auto-Ramp on page 18.) Press YES to begin an early down-ramp or NO to place the pump on hold.

"ENTER CODE"

To prevent tampering with the pump, a special security code must be keyed in before:

- 1) the pump can be changed from Lockout to Programmable, or from Programmable to Lockout.
- 2) the brand of IV administration set and/or the language can be changed.

When the words "ENTER CODE" are displayed, press the NUMBERS keys 9, 1, and 1 sequentially. This will give you access for making the above changes. (See **Programmable/Lockout** on page 11, and **Calibrations** on page 37.)

FLOW SENSOR

The flow sensor is disabled when the pump is set for usage with a SabraSet. (See **Calibrations** on page 37). The flow sensor also may be disabled after the first 3 ml of fluid delivery with other sets.

With an enabled flow sensor, the pump's front panel infusion indicator will flash as it "sees" drips passing through the drip chamber. The flow sensor must be attached to the IV administration set's drip chamber and be connected to the FLOW SENSOR JACK on the rear of the pump.

FREE-FLOW CLAMP

The free-flow clamp prevents gravity free-flow by clamping the tubing closed whenever the outer door is open. The IV set's tubing **MUST BE POSITIONED UNDER THE FREE-FLOW CLAMP** or free flow will occur when the outer door is opened. Although the free-flow clamp prevents unrestricted gravity flow, as an extra safety precaution, it is recommended that the IV set's clamp is closed before opening the outer door. (See **Pump Setup** on page 8).

IV ADMINISTRATION SET, CHANGING THE BRAND OF

See **Calibrations** mode on page 37.

KVO

The pump's KVO rate is 1 ml/hr (except in the Intermittent profile where you can choose a KVO rate between 1-9 ml/hr. (See **Intermittent** profile on page 22). The pump will automatically go into KVO mode during the following:

- 1) when the infusion is complete. The display will be "COMPLTE XXXX".
- 2) during the delay delivery phase. The display will be "DLY:XX:XX:XX".

"KVO TOO HIGH"

In the Intermittent profile, if you enter a KVO rate that is higher than the dose rate, the pump will not accept the entered parameter and the display will show the words "KVO TOO HIGH". Enter a KVO rate that is lower than the dose rate and press YES. See **KVO**.

LANGUAGES

The information displayed by the pump during operation can be displayed in English or in Spanish. (To change the display language, see **Calibrations** mode on page 37).

"LEVEL RATE"

In the Auto-Ramp profile, the level rate is the maximum rate of delivery of the infusion.

MEMORY

See **REPEATING THE DELIVERY OF AN INFUSION PROFILE**

ON/OFF KEY

To protect against the accidental interruption of an infusion, the ON/OFF key is disabled while the pump is infusing. The pump can only be switched off before an infusion has started, after an infusion has been completed, or if the infusion is placed on hold (i.e. if the infusion has been halted for any reason).

"OTHER SET?"

See **Calibrations** mode on page 37.

"PRESSURE:HI" or "PRESSURE:LO"

Pressing the **PRESSURE** key during an infusion will display the current pressure alarm setting ("PRESSURE:HI" or "PRESSURE:LO") for one second. This permits you to check if the pump is in the correct pressure alarm setting. When you press YES as the word "LOCKOUT" or the word "PROGRAMMABLE" is displayed by the pump, the words "PRESSURE:HI" or "PRESSURE:LO" will appear briefly, allowing you to check the current pressure setting. (See **Pressure** mode on page 38).

"RATE TOO LOW"

While programming the Auto-Ramp profile, after you have entered the maximum infusion rate, the words "RATE TOO LOW" may appear. This means that you have entered a maximum rate less than 10 ml/hr (minimum rate in the ramping profile is 10 ml/hr). Enter a rate that is 10 ml/hr or higher.

"RECALIBRATE!"

As an added safety precaution, if the factory calibration of the IV administration set that you have chosen to use with the pump is faulty, the pump will not function and the display will show the words "RECALIBRATE!". You may choose a different brand of IV set. (See **Calibrations** on page 37). If "RECALIBRATE!" continues to display, you may return the pump to Sabratek Corporation for recalibration.

REPEATING THE DELIVERY OF AN INFUSION PROFILE

All profile parameters, except delay delivery, remain in the pump's memory even after the pump is switched off or disconnected from line power. This allows you to repeat an infusion without the need to reprogram the pump before each use.

A. If you wish to deliver the profile that was delivered last by the pump, or the profile that was programmed last, the pump has a shortcut available:

- 1) Switch the pump on by pressing ON/OFF. The words "SELF-TEST...", followed by the name of the IV administration set that must be used with the pump will be displayed ("ABBOTT SET!", "BAXTER SET!", "McGAW SET!", "SABRASET!", etc.).
- 2) Press RUN/HOLD. The infusion rate and the volume-to-be-infused will be displayed, alternating with the name of the profile. This provides you with an opportunity to reconfirm the infusion parameters.
- 3) Press RUN/HOLD again to start the infusion.

B. If you wish to deliver a profile that is different from the profile that was delivered last by the pump, or that is different from the profile that was programmed last, the pump also has a shortcut:

- 1) Switch the pump on by pressing ON/OFF. The words "SELF-TEST..." followed by the name of the IV administration set that must be used with the pump will be displayed ("ABBOTT SET!", "BAXTER SET!", "McGAW SET!", "SABRASET!", etc.).
- 2) Press YES. The word "PROGRAMMABLE" or the word "LOCKOUT" will be displayed (See **Programmable/Lockout mode** on page 11).
- 3) Press YES. The words "PRESSURE:HI" or "PRESSURE:LO" will appear briefly followed by either the word "CONTINUOUS?" (if the pump is in the Programmable mode), or followed by the words "READY XXXX" (if the pump is in Lockout Mode and where "XXXX" is the name of the first profile you locked).
- 4) Press NO until the name of the profile you want to be delivered is displayed.
- 5) When the correct profile is displayed, press RUN/HOLD. The infusion rate and the total volume-to-be-infused will be displayed, alternating with the name of the selected profile. This allows you to reconfirm the infusion parameters.
- 6) Press RUN/HOLD to start the infusion.

"RE-PROGRAM!"

If you try to start an infusion that has a parameter with a value of zero (for example, if you try to start a Continuous delivery which has a volume of 0 ml), the pump will display the word "RE-PROGRAM!". Press YES, then reprogram the profile and give all of its parameters positive values. The only parameters that can be zero are the delay delivery time and the titration rate and volume. (See Titration on page 33).

"RESUME?"

When the pump is switched off during an infusion, and when the pump is turned on again, the word "RESUME?", alternating with the name of the interrupted profile ("CONTINUOUS", "AUTO-RAMP", "INTERMITTENT", "15 PERIODS", or "PIGGYBACK") will be displayed.

A. If you wish to resume the interrupted infusion:

- 1) Press YES. The name of the IV set that must be used with the pump will be displayed briefly. The pump will then display what the rate and the cumulative volume infused values were at the time the infusion was interrupted, alternating with the profile's phase that the infusion was interrupted ("UP-RAMP", "DOSE 2", "PERIOD 1", etc.).

If desired, you may display the remaining volume-to-be-infused, followed by the time left until the end of the infusion by pressing the TIME/PIGGYBACK key.

- 2) Press RUN/HOLD and the infusion will resume exactly at the point where it was stopped.

B. If you do not wish to resume the interrupted infusion:

- 1) Press NO. The name of the IV set that must be used with the pump will be displayed. You may now continue programming according to the **Programmable/Lockout** instructions on page 11, repeat the same infusion from the beginning, according to **REPEATING THE DELIVERY OF AN INFUSION PROFILE** on the previous page.

"SELF-TEST... "

When you turn on the pump, the words "SELF-TEST..." will be displayed for a few seconds while the pump checks that all of its critical components are operating properly.

TIME VS RATE

All of the infusion profiles give you the option of entering the infusion based on the total delivery time (in hours:minutes) or its delivery rate (in ml/hr).

When you enter a delivery rate, the corresponding delivery time of the infusion will be in hours, minutes and seconds but the pump's display rounds off the total delivery time to the nearest minute and will not show the seconds. For example, if you enter a delivery rate of 200 ml/hr and a volume of 5 ml, the pump's actual total delivery time is one minute and thirty seconds but the pump's display will show two minutes.

When you enter a delivery time, the total delivery time of an infusion can be set only in hours and minutes (not seconds). For example, if you choose a delivery time of two minutes and a volume of 5 ml, the pump will deliver the 5 ml at 150 ml/hr.

"TIME LEFT: XXX:XX"

If the TIME/PIGGYBACK key is pressed during programming, at the confirmation screen; or if it's pressed while the pump is infusing, the remaining volume-to-be-infused, as well as the total time remaining until the end of the infusion will be displayed for a few seconds.

"TIME TOO HI"

When programming a profile, if you have entered values that require the pump to deliver an infusion that is above its highest time limit, the words "TIME TOO HI" will appear. Following are two examples:

- 1) If you choose to enter a delivery time parameter (instead of a delivery rate parameter), the time entered is too long for the desired volume. For example, if in the Continuous profile you enter a delivery time of 2 hours and a volume of 1 ml, the words "TIME TOO HI" will appear. This is because these parameters require a delivery rate of 0.5 ml/hr which is below the pump's minimum delivery rate of 1 ml/hr.
- 2) If you chose to enter a rate and a volume, the equivalent infusion time is longer than the pump's time limit. For example, if in the Continuous profile you enter a rate of 1 ml/hr and a volume of 1000 ml, the words "TIME TOO HI" will appear. This is because these parameters require an infusion time of 1000 hours which is greater than the pump's maximum infusion time of 999:59 hours and minutes.

"TIME TOO LOW"

When programming a profile, if you have entered values that require the pump to deliver an infusion that is above its maximum rate, the words "TIME TOO LOW" will appear. For example:

- 1) If you choose to enter a delivery time parameter, it is too short for the programmed volume. For example, if in the Continuous profile you enter a delivery time of 1 hour and a volume of 1000 ml, the words "TIME TOO LOW" will appear. This is because these parameters require a delivery rate of 1,000 ml/hr.

"Total: XXX:XX"

After you enter all of the infusion parameters, the pump automatically calculates the total delivery time for the profile, including the delay delivery time. The total time will be displayed in hours and minutes.

VERIFYING THE INFUSION PARAMETERS

When programming any of the infusion profiles, you can verify or change the infusion parameters you have just entered without switching the pump off:

- 1) At the end of programming the profile, the words "READY" and the name of the profile will be displayed (for example, "READY RAMP").
- 2) Press NO. The words "CHECK" and the name of the profile will be displayed briefly. For example, "CHECK RAMP", immediately followed by the words "DELAY DLVRY?".
- 3) Press YES repeatedly to step through all of the parameters. Use the NUMBERS keys if you wish to change a parameter.
- 4) After verifying that all parameters are correct, press YES and the words "READY" and the name of the profile will be displayed. For example, "READY RAMP".
- 5) If the programmed infusion is for immediate delivery, press either YES or RUN/HOLD. The infusion rate and the volume-to-be infused will be displayed, alternating with the name of the infusion profile. This gives you an opportunity to reconfirm the parameters.
- 6) Press RUN/HOLD and the infusion will start.
- 7) If the programmed infusion is intended for a later delivery, switch the pump off by pressing ON/OFF.

"VOL TOO HIGH"

If the total volume to be infused, within one profile, is greater than the pump's volume limit (9999 ml), the pump will display the words "VOL TOO HIGH". Press NO and the display will return to "DELAY DLVRY?". Step through each parameter until you reach the volume screen and decrease the volume amount. See "Bag Vol: XXXX".

VOLUME-TO-BE-INFUSED

The remaining volume-to-be-infused is displayed in the center of the display screen when the TIME/PIGGYBACK key is pressed during the programming sequence at the confirmation screen, or during an infusion. The volume-to-be-infused is immediately followed by the time left until the end of the infusion, then the display will automatically switch back to showing the rate and cumulative volume infused. The volume-to-be-infused is an accumulation of all the volumes that you wish to deliver. For example:

- 1) You set the pump to deliver a 15 Periods profile, with period 1 volume of 5 ml, period 2 volume of 10 ml, period 3 volume of 30 ml, and period 4 volume of 205 ml. At the beginning of the infusion, the remaining volume-to-be-infused will display as 250 ml. During the infusion, this number will decrease as the solution is administered.
- 2) You set the pump to deliver 2000 ml in the Continuous profile, 100 ml in the Piggyback profile, and a two hour delay before the Continuous infusion begins. At the beginning of the infusion, the remaining volume-to-be-infused will be 2102 ml (2000 ml Continuous + 100 ml Piggyback + 2 ml KVO for the delay delivery time). During the infusion, this number will decrease as the solution is administered.

"WRONG INPUTS"

In the Auto-Ramp profile, after you have entered all infusion parameters, the words "WRONG INPUTS" may appear. This means that either:

- 1) The total delivery time entered is too short or the maximum rate is too high (depending if you chose "INFSN TIME?" or "MAX RATE?"), and/or
- 2) The volume is too low, and/or
- 3) The up-ramp time and/or the down-ramp time are too long.

When the words "WRONG INPUTS" are displayed, press either YES or NO and the words "DELAY DLVRY?" will be displayed. Press YES to step through each infusion parameter and either:

- 1) Increase the delivery time or decrease the maximum rate (depending if you chose "INFSN TIME?" or "MAX RATE?"), and/or
- 2) Increase the volume, and/or
- 3) Decrease the up-ramp time and/or the down-ramp time.

See Auto-Ramp profile on page 19.

BATTERY OPERATION

The Sabratek 3030 is equipped with an internal rechargeable battery for short duration use.

IMPORTANT! Battery power is provided as a back-up system only. To extend battery life, keep pump connected to AC power whenever possible.

If the power cord is disconnected during use, or in the event of power failure, the battery will automatically begin to power the pump and the BATTERY POWER INDICATOR will light up. The pump will operate at 125 ml/hr for approximately 6 to 7 hours on a fully charged battery. Length of battery operation depends on the delivery rate, surrounding temperature, charge condition of the battery and the battery's lifetime usage history.

When there are approximately 60 minutes of battery power remaining, the words "LOW BATTERY" will be displayed and an audible alarm will sound. This is meant to warn the user that there are approximately 60 minutes of battery operating time remaining and that the pump should be connected to a power outlet as soon as possible. If no AC power is immediately available and you want to continue the infusion, you may press RUN/HOLD to restart the infusion. The pump will display "LOW BATTERY" every 15 seconds and give an audible beep alarm every minute (as a reminder to the user) without interrupting the infusion.

When the battery power depletes further, the words "EMPTY BATTERY" will be displayed, an audible alarm will sound and the infusion will be halted. This alerts the user that the pump must be plugged into an electrical outlet immediately in order to complete the infusion.

The pump automatically disconnects the battery from all pump functions once the battery is almost completely depleted (this will occur only after an "EMPTY BATTERY" alarm). When the battery is almost completely depleted, the pump will automatically switch itself off and CANNOT be switched on while on battery power. The ONLY way to restart the pump is by connecting it to AC line power.

The battery is being charged whenever the AC power cord is plugged into the pump and into an electrical outlet. The battery is protected from overcharging. It takes approximately 24 hours for the battery to fully recharge if the pump is infusing.

IMPORTANT! Keep pump connected to AC power when not in use.

Storage of the pump at temperatures >75 degrees F can shorten the battery's overall operating life.

The length of battery operation decreases over time (length of time depends on the number of charge/discharge cycles). Battery may need to be replaced over a period of time.

WHEN USING THE SABRATEK 3030 IN A SITUATION WHERE LOSS OF BATTERY POWER MAY RESULT IN PATIENT INJURY OR DEATH (FOR EXAMPLE, DURING PATIENT TRANSPORT), IT IS RECOMMENDED THAT TWO, FULLY-CHARGED PUMPS ARE MADE AVAILABLE (THE SECOND PUMP TO BE READY AS A BACKUP UNIT).

WARRANTY

Sabratek Corporation warrants that reasonable care has been used in the manufacture of each Sabratek 3030 infusion pump. Sabratek further warrants that the pump will be free from defects in workmanship or materials for a period of one (1) year after the date of shipment when properly used and maintained.

If, within one (1) year of delivery, this product is found to be defective in either workmanship or materials, Sabratek will repair or replace it. The repair or replacement of the product under this warranty shall not extend the term of the warranty beyond the original term as set forth above. To obtain warranty service, a Return Goods Authorization (RGA) number **must** be issued by Sabratek. Reference the RGA number when returning the Sabratek pump.

This warranty will not apply to defective conditions or damage caused, in whole or in part, by negligence, dropped pumps, misuse, abuse, improper installation, repair or alteration by anyone other than authorized personnel, or damage resulting from improper shipment to Sabratek.

These remedies are the exclusive remedies. Sabratek will not be liable for subsequent or incidental damages of any kind.

TECHNICAL SPECIFICATIONS

Flow Rate Range	1 ml/hr to 999 ml/hr in 1 ml/hr increments.
Volume Limit Range	1 ml to 9999 ml in 1 ml increments.
Accuracy	+/-5%.
Pumping System	Linear peristaltic.
Weight	approximately 10.5 lbs (4.5 kg).
Dimensions	8" (20.5 cm)H x 5.5" (14 cm)W x 6.25" (16 cm)D.
Power Requirements	110V AC, 10 Watts, 50/60 Hz.
Power Operating Range	100 to 130V AC.
Over Current Protection	0.25 Amp AC line fuse.
Battery	12 volt, rechargeable.
Battery Operating Range	6 to 7 hours at 125 ml/hr (run-time depends on the state of the battery charge).
Battery Recharge Time	approximately 24 hours from empty battery.
Occlusion Alarm	LO: 8 psi, +/- 5 psi; HI: 20 psi, +/- 5 psi.
KVO Rate	1 ml/hr.; 1 to 9 ml/hr in Intermittent delivery.
IV Administration Set	Non-proprietary, standard, soft, straight-line set. (See Compatible Sets Listing on the first page of this manual.)
Power Cable	approximately 10' long, hospital grade.

CLEANING & MAINTENANCE

WARNING! DO NOT steam autoclave or immerse the pump in liquid or it will be damaged. To avoid possible electrical shock, turn the pump off and disconnect it from the power line before cleaning.

Clean the pump and the FLOW SENSOR using a soft cloth or a sponge dampened with soap and water or with a non-staining disinfectant. **DO NOT** clean the pump with acetone or other plastic solvents or abrasive cleansers. Dry the pump thoroughly before use. Consult the housekeeping and/or the infection control departments for more information.

CAUTION: The pressure sensor must not be cleaned. If it becomes accidentally wet, dry the sensor immediately with a lint-free cloth.

Periodic maintenance should be initiated to assure that the pump is functioning properly.

Dropped or damaged pumps must not be used and must be rechecked by an authorized service technician.

SPANISH-ENGLISH TRANSLATION

SPANISH	ENGLISH
ABAJO-RAMPA	DOWN-RAMP
ABBOTT SET	ABBOTT SET
AIRE-EN-LINE	AIR-IN-LINE
AUMENTO-RAMP	UP-RAMP
BATERIA BAJA	LOW BATTERY
BATRIA VACIA	EMPTY BATTERY
BAXTER SET	BAXTER SET
BLOQUEO INF	DOWN OCCLUSN
BLOQUEO SUP/BOLSA VACIA	UP OCCLUSN/EMPTY BAG
CERRADO	LOCKOUT
COMPLET XXXX	COMPLTE XXXX
CONTINUACION	CONTINUOUS
CONTINUACION?	CONTINUOUS?
DETENIDO	*HOLD*
DOSIS XX	DOSE XX
FUNCION MAL X	MALFUNCTN X
INTERMITENTE	INTERMITTENT
INTRMITENTE?	INTERMITENT?
KVO DOSIS XX	KVO DOSE XX
McGAW SET	McGAW SET
MUEVA TUBO	MOVE TUBING
NIVEL RITMO	LEVEL RATE
NUM DE CODO	ENTER CODE
OTRA SET?	OTHER SET?
PERIODO XX	PERIOD XX
PRESION:ALTA	PRESSURE:HI
PRESION:BAJA	PRESSURE:LO
PROBANDO...	SELF-TEST...
PROGRAMABLE	PROGRAMMABLE
PUERTA ABIER	DOOR OPEN

RAMPA-AUTO	AUTO-RAMP
RE-PROGRAMAR	RE-PROGRAM!
RECALIBRAR	RECALIBRATE!
RITMO RAPIDO	HIGH RATE
SABRASET	SABRASET
SabSil SET	SabSil SET
SEGUIR?	RESUME?
T-RESTANTE:	TIME LEFT:
2NDA BOLSA	PIGGYBACK
15 PERIODOS	15 PERIODS